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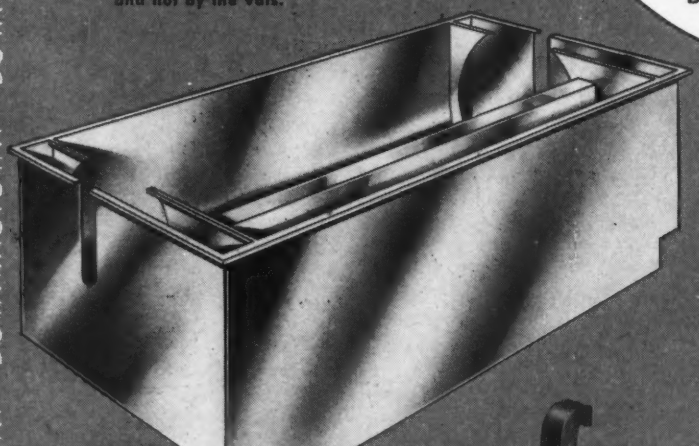

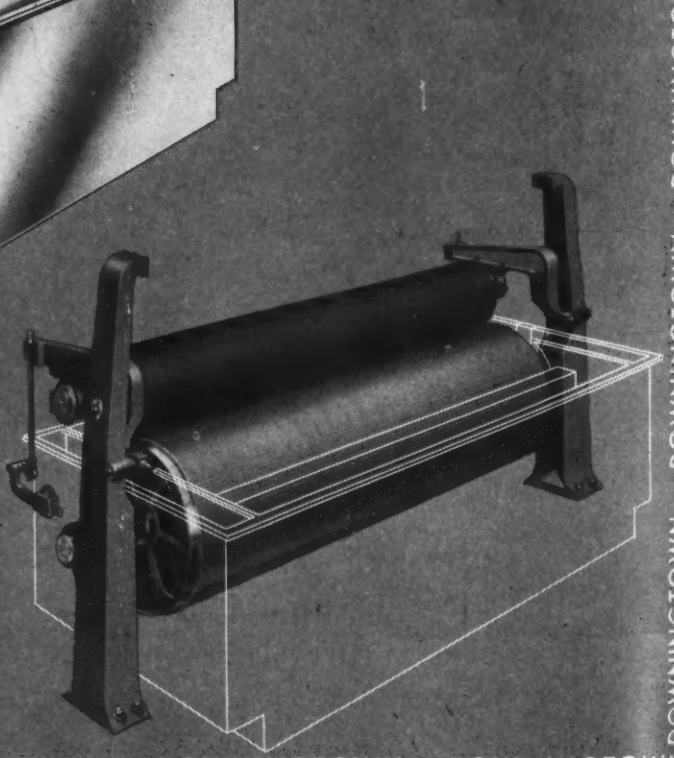

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PAPER
TRADE JOURNAL

Title Reg. U. S. Pat. Off.
Established 1872

Volume 118 Number 23

Published every Thursday by Lockwood Trade Journal Co., Inc.

Executive and Editorial Offices: 15 W. 47th St., New York 19, New York, U. S. A.

Tel. BRyant 9-0860 New York 19, N. Y.

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123 West Madison St., Chicago, Ill.

Subscriptions: (Payable in advance) By the year $4.00; Single Copy 10 cents.
Postage Extra: To Canada $2.00; To Other Foreign Countries $3.50.
Member Audit Bureau of Circulations

PAPER *established Feb. 17, 1899, combined with* PAPER TRADE JOURNAL *Nov. 16, 1899.* PAPER *established Sept. 21, 1910, combined with* PAPER TRADE JOURNAL, *Feb. 19, 1925.* *All rights to the above titles reserved.*

PAPER TRADE JOURNAL *is entered as Second Class matter at the Post Office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. Publication Office of Lockwood Trade Journal Co., Inc., 34 N. Crystal St., East Stroudsburg, Pa. Printed in U. S. A.*

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PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

June 8, 1944

Marathon Mills Plans to Finance Expansion

Preferred Stock Issue of $5,000,000 Contemplated For Large Building Program To Include 90,000 Ton Bleached Sulphite Pulp Mill —Kimberly-Clark Corp. Gets Army-Navy "E"—Other Late News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., June 5, 1944.—Creation of a new $5,000,000 par value preferred stock issue to finance the Marathon Paper Mills Company's large building and expansion program, including a 90,000-ton bleached sulphite mill at Everest, Ontario, is under consideration, it was announced after a meeting of the board of directors May 25 at the company's offices at Rothschild, Wis.

Negotiations are underway with the Lee Higginson Corporation, Chicago, for underwriting the proposed stock issue. The Higginson company released the following statement on behalf of the paper company: "Marathon Paper Mills Company, Rothschild, producers of protective packaging used primarily by the food industry, has called for redemption on July 1, 1944, all of its outstanding 6% preferred stock.

"D. C. Everest, president, announced following a directors' meeting that the company has under consideration the creation and issuance of a new stock issue of $5,000,000 par value preferred stock. Negotiations are under way with the Lee Higginson Corporation for the underwriting of the proposed preferred stock issue."

The new town, at which the new operations will be developed, has been named Everest, in honor of the president and general manager of the paper mill company. Large tracts of Canadian timberlands located near the site are owned by the Marathon Paper Mills of Canada, Ltd., a subsidiary wholly-owned by the Marathon Paper Mills Company.

Construction of the mill and town, which will be complete with a modern hospital, post office, bank, stores, laundry and recreation facilities and living quarters, is expected to require about 18 months.

At the Rothschild meeting the directors voted to pay the regular quarterly dividend of $1.50 on preferred stock to stockholders of record June 20, 1944, payable July 1, 1944. Present at the meeting were D. C. Everest, A. P. Wodson, C. S. Gilbert, Allen Abrams and John Stevens, Jr., all of Wausau; M. P. McCullough and P. D. Armour, Chicago; C. J. Winton, Minneapolis, and Leo Croy, Menasha, Wis.

Kimberly-Clark Awarded "E"

The Army-Navy E, highest production award to industry, has been granted to Kimberly-Clark Corporation, Ordnance Division, Neenah, Wis., according to announcement last week.

The award will be presented at Neenah on June 20, and a representative of the army was to be in Neenah early this week to make the arrangements.

This is the second award for the corporation, which received the army efficiency banner May 18, 1943. The Ordnance Division has been in operation since Jan. 1, 1943, its principal product being mounts for anti-aircraft guns.

It is the second award of the Army-Navy E in Neenah, the first going to the Neenah Paper Company.

Paper Men on Mellon Institute Board

Two Wisconsin paper mill executives have been named to the board of governors of a multiple industrial fellowship at Mellon Institute, Pittsburgh, Pa., established May 24, according to an announcement by the National Council for Stream Improvement of Pulp, Paper and Paperboard Industries, New York.

Wisconsin members of the board are D. K. Brown, president of the Neenah Paper Company, Neenah, and D. C. Everest, president of Marathon Paper Mills Company, Wausau, Wis.

The comprehensive research program of the fellowship, which will be conducted by specialists and for which the Institute will provide facilities will pertain to development of satisfactory methods for the disposal and utilization of wastes from manufacture of pulp, paper and paperboard.

The Mellon Institute has been active for many years in evolving suitable waste treatment processes for the coal, coke, iron, steel and chemical industries. It has conducted investigations on abatement or control of smoke and dust and stream pollution.

With its aim to develop new economic procedures for eliminating stream contamination resulting from the discharge of wastes, the Institute health, engineering, sanitary, cellulose and paper experts will investigate pollutive materials to evolve processing methods; to secure values from them, and to collect information for individual companies and their particular waste disposal problems.

The National Council for Stream Improvement of Pulp, Paper and Paperboard is supported by contributions from pulp, paper and paperboard manufacturers, on a tonnage basis. More than 50% of all the paper mills in the United States are said to be represented.

W. F. Cook Appointed Manager

W. F. Cook of the Industrial Relations department of Kimberly-Clark Corporation, Neenah, Wis., has been appointed manager of its newly-organized sub-

(Continued on page 13)

New Manpower Plan Is Discussed in Chicago

Opinion In Midwest Paper Market Appears Favorable To New Order Freezing Workers and Hopes It Will Help To Relieve Current Shortage — Professional Group To Give Play — Other News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., June 5, 1944.—The local paper market was studying the most recent War Manpower Commission program to freeze workers to essential war jobs with an eye toward whether or not the order, effective July 1, would have a really beneficial effect on the manpower shortage in the pulp and paper field. General opinion was expressed that the order and resultant publicity would intensify interest in the gravity of the shortage in the pulp field and might result in some beneficial action. The pulp situation continued acute despite slight increases in pulp and paper production reported last week. The government allocations program was eliminating entirely any routine civilian supply situation of local jobbers and mill representatives while the drain on other lines as "substitutes" was resulting in a piling up of order backlogs which gave little hope for other than a "mild form of chaos" for the next six months. There continued to be emphasis on the increased costs of making paper and renewed hope that the "incentive" rather than the "scarcity" philosophy of both OPA and WPB would remain in the top spot of interest.

Specifically, sulphites continued to be in extremely heavy demand with krafts and board markets "out of sight" because of the requirements of the military. Books and covers were under renewed pressure from the civilian supply sources with general retail business running progressively better as the warm months approach. Waste paper collections were reported as "good" though still not sufficient to ease the picture to any great extent.

Stage "Paper Lingo" Play

The Chicago Professional Paper Group will hold its regular monthly meeting on Monday evening, June 5, at the Chicago Bar Association dining rooms. It will be one of the headliner meetings of the year with new members swelling the attendance which is expected to be very satisfactory. According to announcements received, the program will center around a three act play or "drama" entitled "Paper Lingo" and the actors are all set to utilize each act to let the paper world know the problems of various branches of the industry. The first scene will have for its setting the offices of a mill superintendent and an imaginary trip through the mills will provide the proper "lingo" analysis to acquaint the trade with mill problems. The second scene is to be in the office of the technical director where technical discussions will arise and problems be explained. The final act will take place in a setting in the offices of a paper merchant in Chicago. According to Harold Alley, Tested Papers, Inc., and president of the Professional Paper Group, a lot of effort has been spent to make the play really carry the most valuable information. Entertainment will be provided by Joe Wallace, poplar Chicago master of ceremonies and comedy impresario. This part of the program is to be sponsored by five firms: Paisley Products, Inc., National Adhesive Division of the National Starch Products Company; Hart & Harrington Company; Arabol Manufacturing Company, and the Manhattan Paste and Glue Company.

Like Fellowship Program

Chicago reaction to the creation of a multiple fellowship at Mellon Institute for the purpose of seeking new or improved uses for the wastes from pulp, paper and paperboard mills was reported as very favorable. The announcement came through the National Council for Stream Improvement which includes larger paper, pulp and paperboard manufacturers and indicated that an additional goal was the elimination of contamination resulting from discharge of waste liquids into rivers and other streams. The hope is that the industry may not only rid itself of an unpleasant stigma but likewise develop by-products which can be recovered to bear at least a portion of the cost of processing. Comments here indicated that the move was of definite value from a public relations standpoint and, as one Chicago paper trade executive put it, "worthy of the seventh largest industry which should be much larger in the post-war days."

Salesmen Resume Sessions

The western division of the Salesmen's Association of the Paper Industry will resume its regular Monday noon meetings at the Hotel Sherman on June 5 after a one week "lay-off" because of the extended holiday. Plans are about completed for the golf outings but the SAPEYES will also feature at least two special speaking programs during the summer months where, according to Pat Patterson, Flambeau Paper Company and western division vice president, matters of real importance to the paper trade and to the selling end in particular will be discussed.

Geigy Announces New Chemical

The Geigy Company, Inc., 89 Barclay street, New York, held a press luncheon at the Pennsylvania Hotel, New York, on May 31. The event was given to announce and discuss a chemical discovery that recently has become a very important military factor and which appears destined to be one of the most important contributions of science to preventive medicine and to agriculture. The merits of DDT, a powerful new insectide, were discussed by C. W. Mahnken, assistant to the president of the Geigy Company. He said that DDT or dichloro-dipheny trichloroethane, was first synthesized in 1874 by a German chemical student who regarded the formula as of no significance. Its valuable properties were discovered by a scientist in the Geigy's parent organization in Switzerland. Recent official announcements of the universal effectiveness of one DDT composition, neocid, in eradicating typhus in Italy and elsewhere have brought this marvel of chemistry to the notice of the public.

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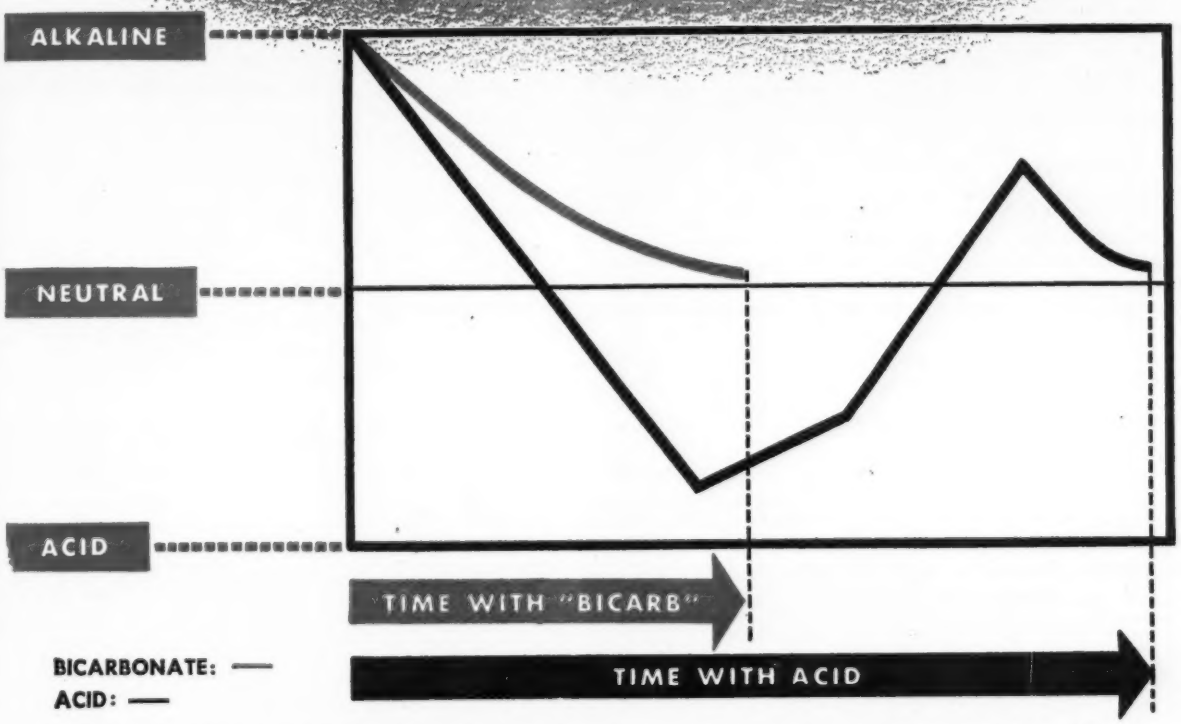

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Paperboard Men Meet at Atlantic City

W. Irving Osborne, Jr., President of the National Paperboard Association, Stresses Responsibility of the Industry To Meet Adequate Production — Grafton Whiting, Statistician, Makes Good Report.

Members of the National Paperboard Association met at the Claridge Hotel, Atlantic City, N. J., on May 17-18, 1944. W. Irving Osborne, Jr., president, Cornell Wood Products Company, Chicago, Illinois, the president of the association, presided at all sessions.

Report to the Membership

President W. Irving Osborne, Jr., submitted an interesting and timely report, in which he stressed the fact that the past year has been one of insufficient paperboard to meet constantly increasing demands and that the result has been further control of the paperboard industry by Washington authorities. He emphasized that the members of the paperboard industry have a responsibility and an obligation to solve the matter of adequate production, regardless of any obstacles that may be in the path. He suggested that the basic solution to the industry's problem is to bring out adequate production and that a production of 165,000 tons weekly, such as was reached during the peak production weeks of early 1942, if maintained, would probably quickly cure the current difficult situation.

President Osborne pointed out that paperboard production during recent weeks, when pulpwood and wastepaper supply have been somewhat improved, has been at higher levels than obtained some six weeks ago.

Report by Dr. Chas. F. Roos

Dr. Chas. F. Roos, submitted an instructive report on the subject—"The Outlook for Labor and Materials." Of particular interest was Dr. Roos' estimate of paperboard requirements in future years. This report was received with considerable interest.

Pulpwood, Pulp and Kraft Board Production

George B. Gibson, of the Union Bag and Paper Corporation, submitted a report in which he summarized the situation as to pulpwood and the outlook for increased production of kraft board. Mr. Gibson stated that there has been a definite increase in kraft pulp and kraft container board production during recent weeks. He explained that during the first 18 weeks of 1944 kraft board production averaged only about 30,000 tons per week, a relatively low level, and that during 11 weeks kraft board production fell below 30,000 tons. The cause of this low production, Mr. Gibson said, was an unprecedented period of continuous wet weather, together with a shortage of labor and transportation facilities, primarily motor trucks.

He also stated that in the South during the first part of the year the woods were under water, and it was practically impossible to move the pulpwood from the woods. Nevertheless the cutting of the wood proceeded during this period and large supplies of pulpwood were built up in the woods; these supplies are available and are now reaching the mills.

Reference was made to the fact that during the past four weeks kraft board production had averaged 34,000 tons per week and there is a general feeling that kraft pulp and kraft board production will continue to increase.

George E. Dyke, of Robert Gair Company, Inc., also submitted some interesting figures, pointing out that during the first quarter of 1944 there was a 24% increase in pulpwood receipts compared with the first quarter of 1943.

In general, Mr. Dyke expressed the view that the Northern pulp situation is turning for the better and that by the fourth quarter there should be a noticeable improvement in the supply of pulp available to the paperboard industry.

The Save-Wastepaper Campaign

H. M. Kieckhefer, of the Kieckhefer Container Company, Camden, N. J., in his capacity as chairman, executive committee of the conservation committee of the wastepaper consuming industries, submitted a report in which he reviewed the National Save-Wastepaper Campaign and the outlook for increasing supplies of wastepaper.

Chairman Kieckhefer described the cooperation being accorded by the newspapers, book publishers, magazine publishers and others, all of which groups are actively supporting the save-wastepaper campaign.

He also submitted a condensed financial statement of the Conservation Committee of the Wastepaper Consuming Industries as of April 30, 1944.

There followed a general discussion of the wastepaper problem.

P. A. Schilling, of Waldorf Paper Products Company, gave an interesting report in which he expressed the view that the individual mills should and can do much more to organize the collection campaigns. He urged the mills to keep their men in the territories until they get definite results and that they follow through with pick-up campaigns by cooperating with the churches and the schools in the various localities. He stated that in his experience it is possible to find individuals and groups in every town, who can and will put on a successful campaign if the mills will send their men to these towns and keep them there until results are forthcoming.

Meeting of Board of Directors

A detailed report was submitted covering the meeting of the Board of Directors held Wednesday afternoon, May 17.

It was reported that since the annual meeting in November two additional companies have been enrolled as members of the Association.

The treasurer's reports were accepted and ordered included in the minutes of the meeting.

The basis of dues was continued at the present rate.

Paperboard Industry Statistics

Grafton Whiting, statistician, submitted a report in which the statistical picture of the paperboard industry was carefully reviewed.

This report showed that paperboard production in 1943 increased 6.7% over 1942.

The following excerpts from the report are considered of timely interest:

ORDERS—The demand for paperboard brought a new all-time high of unfilled orders to 655,000 tons on March 11, 1944, equivalent to 25.2 days. The previous high came with the upswing which peaked in August 1941, when the amount of unfilled orders was 593,000 tons.

ACTIVITY—Cumulative activity of the industry in 1944 to date stands at 95%, compared with 93% in 1943. Current activity stands at 95%, compared with 96% in 1943, and 82% in 1942. The all-time high of 102% was reached in January 1942.

PRODUCTION — The average weekly production of paperboard so far this year has been 148,300 tons. However, during the past four weeks, the average has been 156,000 tons, which is more than enough to satisfy the average incoming orders.

The average working time so far this year is 5 days and 17 hours per week, but the output per hour is less than formerly.

Detailed statistical data were also submitted with respect to Labor, Pulp, and Waste Paper.

War Production Board Controls

There was a discussion regarding WPB controls, and also a discussion regarding the possible issuance of an order governing boxboard. The majority opinion was that no such order will be effective for the third quarter of 1944, and perhaps not for the fourth quarter.

Report was made that in the hope of improving the operation of various orders affecting the paperboard industry, the WPB has appointed a task committee to study this subject.

Statements were made by many individual members expressing appreciation for the splendid cooperation accorded by various individuals, agencies and groups to the paperboard industry in its effort to increase the production of paperboard for the war effort and essential civilian demand.

Edmund J. Lachmann Dead

APPLETON, Wis., June 5, 1944.—Edmund J. Lachmann, 87, a founder and president of the Lakeside Paper Company for 10 years, died Friday morning, June 2, at his home at Neenah.

The son of John and Catherine Lachmann, he was born Jan. 11, 1857, in Neenah. For some time he lived in Chicago, but returned to Neenah in 1879, and in 1883 entered a partnership with his father-in-law, Frederick Kreuger, forming the Kreuger and Lachmann Milling Company, of which he was held until 1918.

In 1910 he participated in the founding of the Lakeside Paper Company, and was president from that date until 1920, when the stock was sold. He was also one of the organizers and president for several years of the Neenah State Bank, and organized the E. J. Lachmann Company, an investment business.

For 13 years he was secretary of the Wisconsin State Millers Association. He had been a thirty-second degree Mason since 1890, and was also a charter member of the Knights of Pythias, and a charter member of the Fraternal Order of Eagles.

Survivors are two daughters and a son. Funeral services were conducted Sunday afternoon, June 4, at the Masonic Temple.

TO FINANCE EXPANSION

(Continued from page 9)

sidiary, Kimberly-Clark Corporation of Canada, Ltd. The new plant, which will manufacture crepe wadding, is now under construction at Kapuskasing, Ontario.

Mr. Cook, a graduate of Queens University, Kingston, Ontario, has been connected with Kimberly-Clark since 1928. As a member of the Industrial Relations department, he pioneered the corporation's wage and salary job analysis program. Subsequently he served as Personnel department superintendent of the Lakeview mill at Neenah, and when the Ordnance division was instituted in 1942, he was chosen to head the industrial relations phases. More recently, he has been studying the diversified factors involved in shaping corporation policy and procedure with respect to reinstatement of veterans of this war.

A. C. Gilbert Speaks on Employment

A. C. Gilbert, president of Gilbert Paper Company, Menasha, Wis., member of the National Association of the Manufacturers Reemployment committe, discussed the NAM's approach to the employment of returning veterans, last week in a an address before the Twin City Reinstatement committee at the Valley Inn, Neenah. S. F. Shattuck, vice president of Kimberly-Clark Corporation, Neenah, Wis., is the other Twin City representative on the committee, which met recently in New York to discuss the reinstatement of veterans.

Presents Thilmany School Awards

The Thilmany awards to students at Kaukauna High School were presented at graduation exercises last week to Mary Lou Haas and Gerald Derus. The presentation was made by Elmer Jennings of Thilmany Pulp and Paper Company, Kaukauna, Wis. The winners were picked by a faculty committee. They were judged on scholarship, character and activity.

A. G. Wakeman to Address Rotarians

A. G. Wakeman, formerly with the War Production Board at Washington, D. C., will be the speaker at the Rotary Club luncheon meeting Tuesday evening at the Conway Hotel, Appleton, Wis. He is now with Kimberly-Clark Corporation, Neenah, Wis.

Knowlton Bros. Employees Honored

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., June 3, 1944.—A number of officials and employees of Knowlton Brothers, Inc., comprising a group associated with the concern over twenty years or more, were guests of honor at a banquet held here last week. The occasion also marked the observance of the 120th anniversary of the founding of the local paper manufacturing industry which was started in 1824 by George W. Knowlton, Sr. G. Seymour Knowlton, chairman of the board of directors, holds the record for the longest term with sixty-two years of service. Next is James C. McCormick, treasurer, with more than fifty-four years of service. The third longest in the employ of the concern is John H. Brownlee, a finisher, whose service totals forty-five years. During the banquet twenty-three officers and employees were presented with medals symbolic of their long service with the company.

More Light-Weight Newsprint is Predicted

Production of 30-Pound Paper Comprised About Half of Total Output In May and Production May Increase In June — Pulp And Paper Associations Represented At Recent Forest Conference.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., June 5, 1944.—It is understood here that the results of the experiment in making 30-pound newsprint by Canadian mills shows that during May about 50% of the total production was of the lighter weight and that the June production of the 30-pound paper is likely to be slightly higher. This would indicate that after the "experimental" period authorized by the government, the production of the lighter newsprint will be continued on a more permanent basis.

Nothing as yet has been revealed to indicate that the change in the weight of the paper being produced will result in any savings in the pulp used or any increase in either the paper tonnage or yardage.

Canadian operators are still of the opinion that a complete changeover from 32-pound paper to 30-pound paper would lower Canadian tonnage production. In a study of the problems involved the Newsprint Association of Canada early in the year estimated that the loss of tonnage would be 9.4% and the loss of yardage 3.4%. However, some of the large buyers in the United States have preferred the 30-pound paper and Canadian mills feel that they must meet the competition of their American contemporaries. To get away from the loss of time and production through the changing of the machines from one weight of paper to another, and at the same time co-operate with the government and the wishes of their United States customers, Canadian mills have attempted to concentrate production of 30-pound paper at those mills best adapted for such production, even though this has meant disruption of long-standing trade relationships with old customers. This policy has had the beneficial effect of keeping loss of time and loss of trim to a minimum.

Nevertheless, it is contended, even with the most efficient production methods and the greatest effort to obtain the maximum output, it is evident that a 50-50 split in the production of 30-pound and 32-pound newsprint must mean lower total tonnage and no increase in yardage deliveries.

Associations Represented at Forest Meeting

Canadian pulp and paper associations were represented at the recent conference in Winnipeg of the forest industries of the Dominion, but only by "observers," yet it is hoped by officials of the other branches of the forest industries that the pulp and paper associations will be represented in a new national forestry committee set up to approach the Federal Government with a new and unified proposal for improvement of the present tax structure.

The three forestry associations, representing British Columbia, Eastern Canada and the Maritimes, have come together with a common policy which will be taken directly to the government. It is claimed that earlier procedure, which had effect through studies and decisions by a Timber Depletion Committee, chaired by C. Fraser Elliott, had not been satisfactory.

The new approach stems from a proposal made at Winnipeg by the B. C. Loggers' Association. It is analogous to the system of timber depletion allowances operative in the United States and proposed a system of yearly valuations, for tax purposes, of the actual cut of timber removed from each "operation" and a tax free allowance which would provide the difference between acquisition and replacement costs. The aim is to achieve a system which segregates the "capital gains" portion of yearly income from what might be properly defined as taxable revenue.

Robert McKee of Vancouver heads the new committee named at Winnipeg to represent the forests industries and it is expected that representations will soon be made to the Government on this proposal as well as on other matters.

J. H. Rosmait Goes with D. J. Murray

J. A. Rosmait, since 1920 associated with the paper industry and the past two years on the design of specialized heavy war production machines, on June 1 became associated with D. J. Murray Manufacturing Company, Wausau, Wis.

Mr. Rosmait is a native of Wisconsin, born and educated in Milwaukee. His first engineering experience, 1911 to 1913, was in the automotive industry, in several of the largest automotive plants in the Detroit area; later with a large automobile builder in Racine, Wis. From 1913 to 1920 he was employed by a large Milwaukee manufacturer, serving as hydraulic design engineer, in the pump and hydraulic turbine departments. He also served part time as sales engineer in Texas. While with them he came into contact with paper mills in Wisconsin and Michigan. Many hydro plants now operating were designed and installed during the years from 1913 to 1920.

In 1920 Mr. Rosmait came to the paper industry —as hydraulic engineer for one of the leading paper manufacturers in Wisconsin. His work was on modernization of water wheel equipments. For nearly 10 years he remained with them and developed much of their converting machinery. In the modernization of various mills and processes he served as staff design engineer.

Since 1920 Mr. Rosmait has remained in the paper industry directly as in the manufacture of machinery for mills. For 5 years he was secretary and chief engineer of a machinery manufacturer to develop and perfect a modern oil hydraulic press for the production of melting briquettes, from cast iron borings and steel turnings.

Other experience during the past twenty years included chief engineer for a large eastern paper manufacturer in charge of all New England and Wisconsin properties, paper mills and bag factories and subsidiaries in the South—also chief engineer for a Michigan paper mill and Wisconsin manufacturer of specialized paper mill machinery.

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Issues Amended Paper Standards

WASHINGTON, D. C., June 7, 1944—Restrictions on the manufacture of paper and paper board, as to grade, weight, size, color, and style, were further standardized and simplified in amended Schedules I to IV, IX, XIV and XV of Limitation Order L-120, issued by the Paper Division of the War Production Board today.

The amendments conserve paper-making fibers, such as wood pulp, rags, waste paper, etc., by reducing maximum permitted basis weights of papers and increasing the usable surface area to the greatest possible extent, officials of the Paper Division said. The intensified critical situation in the pulp and paper industry, involving primarily a shortage in wood pulp largely because of the scarcity of labor, equipment and transportation, necessitates the several amendments effective today, it was explained.

Amendments to Schedules I and II, covering paper and paperboard for commercial printing and book papers, reduce maximum permitted basis weights materially but effect an estimated saving in fiber of about 6%, or a corresponding increase in area or yardage, it was pointed out. No substantial additional filler content is considered practical in these papers, as manufacturers are reported already using fillers to the greatest extent practicable.

Maximum permissible weights in most grades of fine printing papers, under Schedule III, have been reduced. This should effect a saving similar to that expected in Schedules I and II, officials of the Paper Division said.

An exception to the general reduction in weights is made in Schedule IX, which affects tablets, notebooks, pads, loose-leaf fillers and sheets, and permits use of 60-pound manila and gray groundwood drawing paper used largely in elementary schools as water color paper, instead of the 50-pound paper which was found unsuitable.

Several print papers for use in magazines, covered by Schedule XIV, were reduced in maximum basis weights, without addition of any more filler.

Among the papers affected are: uncoated English (Machine) finish book papers 25" by 38", reduced from 45 to 40 pounds; uncoated supercalendered book papers, reduced from 50 to 45 pounds. Coated book papers are now limited to a maximum weight of 45 pounds for body stock for use inside publications, and cover stock of this type paper was fixed at 62 pounds for body stock. Regular school drawing paper was reduced in weight from 50 to 45 pounds. The maximum weight of standard newsprint remains at 32 pounds.

Types of groundwood papers now included in a new Schedule XV require a reduction in most former standard maximum weights to conserve pulp. No more than three standard grades of this type of paper are now permitted, and in two grades, selected by the paper manufacturer, two colors, white and India only, are permitted. In the other grade paper may be made in three additional colors if the producer desires.

Most grades are limited to 21, 23, 25, 28, 31, 35 and 40 pounds, but in certain grades maximum weights run up to 45 and 50 pounds. Under type B, only one groundwood printing paper may be manufactured in white and India, but maximum weights run from 30 to 45 pounds for special uses in juvenile book manufacturing. Novel news is limited to one grade weighing 30 to 32 pounds, in white only. Mimeograph paper is fixed at two grades, white and six colors, and limited to substance weight 16 pounds.

Goulds Announces New Rotary Pumps

Goulds Pumps, Inc., of Seneca Falls, N. Y., have just announced the addition of a new line of rotary pumps of the double helical or herringbone gear type which are designed to handle liquids which possess inherent lubricating qualities. The pumps are available in ten sizes ranging from that with a one half inch suction and discharge and with a capacity of from one to one and one half GPM to the two and one half inch type with capacity ranging from fifty to seventy-five GPM. Maximum working pressures in all sizes is given as 75 lb. All sizes are obtainable for direct drive through flexible coupling or for belt drive.

Features of the new rotary pumps include their simplicity of construction involving but two moving parts, a split bolted type gland, renewable bearings and built-in relief valve. All are exceptionally quiet in operation.

The rotors are accurately bored and pressed onto the shaft. The driven gear is of bronze while the driving gear is of steel held by a key.

Bearings are of high lead bronze fitted with grease lubricators. The extra deep stuffing box is fitted with metallic packing. The bronze gland is split in halves for easy removal and is held together by two fitted bolts.

The relief valve of the stainless steel ball type is built into the pump cover and is externally adjustable.

In addition to the standard fitted type all pumps are also available with all parts of iron or steel or in all bronze construction.

Complete descriptions and specifications of the new line of rotary pumps is contained in Goulds Bulletin No. 643, copy of which may be obtained by writing Goulds Pumps, Inc., Seneca Falls, N. Y.

Sterling Fibreboard to Rebuild

J. A. DeCew, president of the Sterling Fibreboard Company, of 9 West Prospect avenue, Mt. Vernon, N. Y., states that the company's mill building at South Coventry, Conn., which was destroyed by fire on March 5, will be rebuilt as soon as the materials for reconstruction are available. This property has been operated under lease by the Sterlite Fibre Products Company for a period of 8 years and manufactured a leather substitute from stock paper and rubber emulsions. All of the equipment and processes involved in the manufacture of the product known as "Sterlite," used primarily in non-rationed shoes, were designed and developed by Mr. DeCew who is a well known chemical engineer with long experience in papermaking processes. With new equipment and the establishment of further improvements in the methods of manufacture which have been recently developed, the company expects to make a still better product at reduced manufacturing cost.

Ancram Employees Organize

[FROM OUR REGULAR CORRESPONDENT]

CHATHAM, N. Y., June 5, 1944.—Employees of the Ancram Paper Company have voted to organize a local union and affiliate with the International Brotherhood of Papermakers. Peter Hall has been elected president of the organization. Other officials elected are Aubrey Corbett, vice president; Agnes Reil, recording secretary; Harriet Wyckoff, financial secretary; Melvin Sigler, treasurer; Russell Granacher and Arthur Middlebrook, trustees.

New TAPPI Members

The executive committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

Alf. A. Alfsen, mechanical engineer, American Defibrator, Inc., 405 Lexington avenue, New York, a 1932 graduate of Härnösands Technical Läroverk (Sweden).

Arthur Biddle, director of research and development, Reynolds Metals Co., 10th and Byrd streets, Richmond, Virginia.

Donald E. Borchers, research chemist, Celanese Corporation of America, Amcelle (Nr. Cumberland) Maryland, a 1942 graduate of the New York State College of Forestry.

A. Herbert Chamberlain, chief chemist, Felt and Insulating Board Div., Bird & Son, Inc., Phillipsdale, R. I., a 1922 graduate of the University of New Hampshire.

Herbert C. Church, chemist, American Coating Mills, Inc., Elkhart, Ind., a 1935 graduate of the New York State College of Forestry.

John F. Cipriano, plant superintendent, Chas. W. Speidel & Co., 112 North 12th street, Philadelphia.

Fred A. Coe, assistant resident manager, West Virginia Pulp and Paper Company, Mechanicville, N. Y., a 1918 graduate of Cooper Union.

R. S. Conabee, engineer, Lukenweld, Inc., Coatesville, Pa., a 1932 graduate of Pennsylvania State.

John P. Flanigan, chief chemist, Oswego Shade Cloth Company, Oswego, New York, a 1938 graduate of Syracuse University.

Russell I. George, superintendent of pulp mill, West Virginia Pulp and Paper Company, Mechanicville, N. Y., a 1925 graduate of Rensselaer Polytechnic Institute.

Robert N. Griswold, sales and technical service, Heller & Merz Department, Calco Chemical Div., American Cyanamid Company, Bound Brook, New Jersey, a 1933 graduate of the University of Wisconsin.

Dallas E. Henry, assistant to superintendent of pulp mill, Southern Advance Bag and Paper Company, Hodge, La.

T. Frankel Herzberg, Technical Adviser to Wiggins, Teape & Co., Ltd., and Director of Greaseproof Paper Mills, Ltd., Aldgate House, 46/58 Mansell street, London, E.1, England, a 1922 graduate of the University of Vienna.

George N. Hoover, Jr., Paper Mill Superintendent, West Virginia Pulp and Paper Company, Mechanicville, N. Y.

Rolf L. Peterson, research chemist, American Can Company, 449 Communipaw avenue, Jersey City, N. J., a 1934 graduate of the University of Iowa.

Bernard C. Shearier, assistant chemist, Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis.

R. L. Snideman, president and general manager, American Coating Mills, Inc., Elkhart, Ind.

J. Edward Vivian, acting director, School of Chemical Engineering Practice, Massachusetts Institute of Technology, Cambridge, Mass., a 1938 graduate of the Massachusetts Institute of Technology.

Donald Richardson Now Major

BOSTON, Mass., June 5, 1944.—Donald Richardson, formerly salesman for Storrs & Bement Company, has been promoted from captain to major. Major Richardson is stationed at Boston.

War Prisoners Work in N. Y. Woods

With several sections of the country successfully meeting the pulpwood shortage by use of German War prisoners in the woods, New York State will now share in this method of relieving shortage of raw materials for essential papers.

A few days ago, the first group of war prisoners, veterans of North Africa, Sicily and Italy started wood cutting in Diana County, New York, cutting timber from one of the tracts owned by St. Regis Paper Company, 230 Park avenue, New York, N. Y. Roy K. Ferguson, president of the St. Regis Paper Company, announced that this pulpwood would move to the company's mills at Deferiet and Harrisville, N. Y., where important Government contracts for paper require continuous supply of pulpwood.

Certification of the shortage of labor and the need of employment of these prisoners was made by the United States Employment Service on March 9. Following this, a contract was negotiated with the St. Regis Paper Company and the War Department, which provided for the moving of a group of Germans to the C.C.C. Camp at Croghan, N. Y. The men are quartered in comfortable camp buildings, and have received training under the direction of the Timber Production War Project of the U. S. Forestry Service.

Many of the prisoners of war are unfamiliar with woods work. However, it is reported that they are strong and healthy and that most of them seem to be anxious and willing to learn and to cooperate.

Cost Control in Logging

The McGraw-Hill Company has recently published a valuable book on Cost Control in the Logging Industry, by Donald M. Matthews, Professor of Forest Management at the University of Michigan, an authority in this field (373 pp. 6 x 8). The purpose of the book is to give readers a sound realistic treatment of the constantly recurring and varied problems which arise in the field of logging. The author analyzes the logging chance and compares costs which may be anticipated under various possible methods of operation. The basic principles of cost comparison are first developed, then applied to general problems, and finally illustrated by special cases.

Among the subjects covered are the following: The planting and nursery problem; application to pulpwood production costs; unit costs and machine rates; truck and tractor production data; skidding performance; economic location of roads and landings; hauling costs, selection of equipment, road standards and road spacing; and collection and preparation of cost data.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd street, New York 17, N. Y., at $4.00 per copy.

Correction

Through an error in the list of representatives present at the annual conference of the Institute of Paper Chemistry, published in the May 25 issue of the PAPER TRADE JOURNAL, some omissions inadvertently occurred. The list should have included Thomas J. Burke, secretary of the Sulphite Paper Manufacturers Association, and Morris C. Dobrow, secretary of the Writing Paper Manufacturers Association.

Paper and Pulp Men Meet with WPB

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 7, 1944.—Manpower, equipment and transportation problems of the pulp and paper industry of the West Coast were laid before the War Production Board May 29 at the first meeting of the West Coast sectional Pulpwood Industry Advisory Committee held in Seattle, Wash., by James L. Madden, deputy director of WPB's Paper Division.

Fourteen of the seventeen representatives of the pulp, paper and fiber board industry on the coast attended the meeting, which Mr. Madden pointed out was one of the first WPB advisory committee meetings ever held outside Washington.

The extreme importance of sustaining and increasing the production of pulp was emphasized by Mr. Madden, who said that national production has not kept pace with consumption. He said that in the last two years inventories of wood pulp have dropped approximately 600,000 tons from 967,000 tons, and pulpwood inventories have decreased substantially, while waste paper inventories have been reduced to less than 300,000 tons, as compared with over 500,000 tons, and paper in warehouses and on shelves, is 40 per cent less than two years ago.

"Our job is to do everything possible to increase production of logs and pulp to meet the continually increasing military demands of such items as explosives, boxes and crates, waterproofed wrappings, maps, etc.," he said, and in order that curtailments of paper products necessary to provide for the more important elements of the civilian economy may be kept at a minimum.

Those who attended the first meeting of the newly formed advisory commitee for the West Coast included the following: Wylie Smith, Coos Bay Pulp Corporation, Empire, Ore.; P. H. Henderson, Rayonier, Inc., Seattle, Wash.; D. S. Denman, Crown Zellerbach Corporation, Seattle, Wash.; J. C. Hayes, Everett Pulp and Paper Company, Everett, Wash.; Taylor Alexander, Columbia River Paper Company, and Oregon Pulp and Paper Company, Portland, Ore.; H. M. Washbond, Spaulding Pulp and Paper Company, Newberg, Ore.; R. W. Simeral, Firtex Insulating Board Company, St. Helens, Ore.; E. E. Flood, Pacific Paperboard Company, Longview, Wash.; C. E. Ridgeway, Soundview Pulp Company, Everett, Wash.; Walter Delong, St. Regis Pulp Company, Tacoma, Wash.; Carl Braun, Hawley Pulp and Paper Company, Oregon City, Ore.; Irving Rau, St. Helens Pulp and Paper Company, St. Helens, Ore.; R. W. Wertheimer, Longview Fibre Company, Longview, Wash.; Myron W. Black, Inland Empire Company, Millwood, Wash.; Lawson Turcotte, Puget Sound Pulp Timber Company, Bellingham, Wash.; and L. J. Steinhardt, The Paraffine Companies, Inc., Emeryville, Cal.

J. H. Brundage in New Position

James H. Brundage, former Western sales manager, Reading Paper Mills, Reading, Pa., with headquarters in Chicago, and previously associated with Evans-Winter-Hebb, Inc., a printing and direct advertising organization; has been appointed to the production staff of Aubrey, Moore & Wallace, Chicago advertising agency.

Paper Production for April

The following data cover all known mills and represent a continuation of the monthly statistics initiated in "Facts for Industry," series 24-2-1. For annual data and a description of the statistics, "Facts for Industry," series 24-1-2 should be consulted. All inquiries concerning these data should be addressed to the Bureau of Census, Washington 25, D. C.

Type of paper	1944 April	1944 March[1]	April 1943
All types	1,402,180	1,483,085	1,438,358 [2]
Newsprint	56,630	60,552	68,102
Groundwood papers	48,651	47,564	47,798
Printing	19,045	19,296	14,400 [3]
Specialties	29,606	28,268	33,398 [3]
Book papers	117,613	126,393	133,204
General printing	82,178	90,609	96,494 [3]
Converting papers	35,348	35,627	35,957
Other book papers	87	157	753
Fine papers	78,270	88,024	88,372
Writing papers	56,996	64,838	67,157 [3]
Cover and text	4,714	4,902	3,600
Reproduction	4,011	4,562	4,081 [3]
Bristols[4]	7,512	8,002	8,529 [3]
Thin papers	4,799	5,106	4,590
Other fine papers	238	614	415
Wrapping papers	149,709	175,352	169,280
Bag papers	25,891	32,144	47,860
Glassine	7,069	7,406	6,507
Greaseproof	2,066	2,288	2,335
Vegetable parchment	2,460	3,059	2,512
Converting papers	66,580	71,970	47,943 [3] [5]
Wrapping papers	45,643	58,485	62,123 [3] [5]
Multiwall sack papers	30,727	31,709	22,627
Special industrial papers	19,192 [6]	20,018 [6]	16,672
Sanitary papers	66,014	70,278	68,026
Tissue papers	12,953	14,569	13,613
Absorbent papers	7,298	8,832	6,872
Building papers	73,124	79,682	71,234
Paperboard	741,999	760,112	732,551
Container board	353,373	353,601	346,654
Folding boxboard	165,861	178,347	174,787
Set-up boxboard	62,518	64,636	73,849
Cardboard	5,219	6,182	5,986
Building board	96,770	94,483	90,833
Miscellaneous other board	58,258	62,863	40,442
Tube stock	39,312	42,972	22,553

[1] Revised.

[2] Includes a small quantity of paper not classified by type.

[3] Data revised to conform with certain changes in paper and paperboard classifications, which became effective beginning January, 1944. For figures covering other months of 1943, see "Facts for Industry," Series 24-2-5.

[4] Inclues Government Postal Card stock.

[5] Includes a small quantity of Special Industrial Papers having a basis weight of less than 100 pounds. Such paper was classified as Wrapping Paper prior to January, 1944.

Gordon J. Wiest Joins Pennsalt

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., June 5, 1944 — Gordon J. Wiest, well known sanitary engineer in the Middle Atlantic District, has joined the Technical Service Department of the Pennsylvania Salt Manufacturing Company, Philadelphia, Pa., as of May 15, 1944, according to an announcement by L. L. Hedgepeth, manager of Technical Service. Mr. Wiest has specialized during the past 12 years on the operation of sewage and industrial waste disposal facilities with unusual problems. Some of his assignments have been at the sewage disposal plants at Lancaster and Chester, Pa., industrial waste disposal for the Brewster Aeronautical Corporation, and a number of special waste disposal assignments for Albright & Friel, consulting engineers in Philadelphia.

He is a native of York, Pa., a graduate of Franklin & Marshall College, and has taken graduate work in sanitary engineering at the University of Michigan and Johns Hopkins University.

Mr. Wiest will work in the municipal and industrial waste disposal field for the Pennsylvania Salt Manufacturing Company in their several works as well as for the trade.

Mill Machinery Committee Reports

At a recent meeting of the Pulp and Paper Machinery Advisory Committees, held in Washington, it was disclosed that orders for machinery and equipment for the paper and pulp industry are below expectations. Allen Hyer, of the Paper Division, War Production Board, presided at the meeting and said that orders for pulp and paper machinery are not increasing as rapidly as the Paper Division expected. Although the dollar value of applications is greater, Mr. Hyer stated, the number of applications is not. He attributed the small number of applications to uncertainty on the part of mills about their future operating programs. Shifting of production from less critical to more critical items adds to the uncertainty of many paper mills.

Mr. Hyer said that there is undoubtedly a need for machinery in many cases where it has not been requested. He pointed to the fact, however, that the Division has processed some $2,600,000 worth of machinery in March, April, and the first half of May.

Committee members reported that they had conferred with Mr. Simrall of the OPA. That agency had stated that any price adjustments must be made with manufacturers as individuals, not as an entire industry. The reason for such a procedure is that pulp and paper machinery producers manufacture different kinds of equipment. The procedure for making quotations is covered by MPR-136, Section 1290.25A, paragraph (a) (4). To establish prices for new machinery, not manufactured in 1941, refer to MPR-136, Section 1390.13 and 1390.7 and use Form 694-772, copies of which are available at the nearest District Office of the Office of Price Administration.

As previously stated in the PAPER TRADE JOURNAL, Limitation Order L-83 on paper machinery was amended on April 20, 1944. It now provides that applications for equipment having a value of less than $2,500 shall be made to WPB field offices. Over that amount applications are filed with the Paper Division of the WPB in Washington.

Members of the committee present included the following: Samuel J. Campbell, Hudson Sharpe Machinery Company, Green Bay, Wis.; Phillips Dennett, Bird Machine Company, South Walpole, Mass.; S. Harley Jones, E. D. Jones & Sons Co., Pittsfield, Mass.; L. J. List, Samuel M. Langston Co., Camden, N. J.; Homer D. Martindale, Shartle Brothers Machine Company, Middletown, Ohio; and H. C. Moore, Beloit Iron Works, Beloit, Wis.

High-Polymer Physics Div. to Meet

The inaugural meeting of the new Division of High-Polymer Physics of the American Physical Society will be held on June 23 and 24, 1944, at the University of Rochester, Rochester, N. Y. A program of approximately twenty selected papers on the elasticity, viscosity, and other physical properties of high-polymeric materials, as well as on the application of physical methods to manufacturing processes, has been arranged.

Recognizing the expansion in the applications of physics and physical techniques arising from the recent, rapid development of the field of high-polymeric materials, the Council of the Society last November authorized the establishment of the Division of High-Polymer Physics. The object of the Division is the advancement and diffusion of the knowledge of the physics of high-polymeric materials, such as rubbers, textiles, plastics, pulp and paper, paints and varnish, and leather. The interests of the Division will be sufficiently broad to appeal to physical scientists in academic, industrial, and governmental laboratories. The initial enrollment of physicists in the Division has been very gratifying.

The inaugural program at Rochester is being sponsored by members of an organizing committee appointed to take charge of the affairs of the division during the formative stage. This committee consists of K. K. Darrow (chairman), R. B. Barnes, F. G. Brickwedde, W. F. Busse, P. Debye, J. H. Dillon, G. B. Pegram, A. E. Ruark, L. A. Wood, and W. J. Lyons (Southern Regional Research Laboratory, 2100 Robert E. Lee Boulevard, New Orleans 19, Louisiana), who is serving as secretary of the committee.

Litho Foundation Expands

E. H. Wadewitz, president of Western Printing and Lithographing Company of Racine, Wis., and Poughkeepsie, N. Y., is the newly elected president of the Lithographic Technical Foundation, Inc., according to announcement made at the annual meeting of the Foundation in Chicago early in May.

Mr. Wadewitz, a former LNA president and extremely active in industry affairs for some years past, succeeds Alfred B. Rode, who had served the Foundation as its president since it was founded in 1924.

In keeping with a new post-war plan of progress and expansion for the Lithographic Technical Foundation, to take effect immediately, President Wadewitz released the names of the new officers and members of an enlarged board of directors as follows:

President: E. H. Wadewitz president, Western Printing and Lithographing Company, Racine, Wis.; Vice President: L. H. Jackson, president, Stecher-Traung Lithograph Corporation, Rochester, N. Y.; Secretary: Gen. Wm. Ottmann, chairman of the board, U. S. Printing and Lithograph Company, New York City; Treasurer: R. R. Heywood, president, R. R. Heywood Company, Inc., New York City.

The new president of the Foundation, Mr. Wadewitz, made it clear that the future activities of the Foundation, in the lines of research and education, will not have interference from or control by any other source, not excluding, of course, any cooperation with other trade associations.

The Foundation is now conducting a national campaign for funds in the form of endowment and annual sustaining memberships and all members of the lithographic and related industries will be given an opportunity to support the worthwhile activities set forth in its new program.

D. G. Driscoll Heads Sorg Paper Co.

MIDDLETOWN, Ohio, June 5, 1944.—J. A. Aull, Sr., was named chairman of the board of the Sorg Paper Company, and his son-in-law, Donald G. Driscoll, was appointed President succeeding Aull, it was announced last week.

Mr. Aull came to Middletown from Pittsburgh and was named a director of the paper concern in 1908.

He was guest of honor recently at a testimonial dinner at the Manchester Hotel, given by employees of the company.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending June 3, 1944

STOCKS

	High	Low	Last
A. P. W.	2¾	2¾	2¾
Armstrong Cork Co.	41⅜	40½	40½
Celotex Corp.	12¾	11⅝	12⅛
Celotex Corp., pf.	17¾	17¼	17⅜
Certain-Teed Products Corp.	67½	64	65
Certain-Teed Products Corp., pf.	66¾	63½	66
Champion Paper & Fibre Co.	25¾	25½	25½
Champion Paper & Fibre Co., pf.	112	111	112
Congoleum Nairn Co.	24¾	24⅛	24½
Container Corp. of America	24½	24	24⅜
Continental-Diamond Fibre Co.	10½	10⅛	10½
Crown-Zellerbach Co.	17½	17	17⅛
Crown-Zellerbach Co., pf.	100	99	99¾
Dixie Cup Co.	16½	16¼	16½
Dixie Cup Co.—A	46	45¼	45⅝
Flintkote Co.	22½	22⅛	22⅜
Flintkote Co., pf.	107	107	107
Robert Gair	3⅞	3⅝	3⅝
Robert Gair, pf	14⅞	14¾	14¾
International Paper Co.	17⅛	16⅝	16⅞
International Paper Co., pf.	84¼	81¾	82¼
Johns-Manville Corp.	95⅜	94	95¼
Johns-Manville Corp., pf.	....	....	....
Kimberly-Clark Corp.	35½	35½	35½
Mac Andrews & Forbes	27	26½	27
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	49⅜	46¾	46¾
Mead Corp.	9⅞	9¾	9¾
Mead Corp., pf. A-6%	....	....	....
Mead Corp., pf. B-5½%	....	....	....
National Container Corp.	17	15⅜	17
Paraffine Companies, Inc.	54	51½	54
Paraffine Companies, Inc., pf.	105¼	105¼	105¼
Rayonier, Inc.	14¾	14⅜	14⅜
Rayonier, Inc., pf.	30¾	30¼	30⅜
Ruberoid Co.	29¾	29½	29¾
Scott Paper Co.	40¾	40¼	40¾
Scott Paper Co., pf.	110¼	110¼	110¾
Sutherland Paper Co.	30½	30½	30½
Union Bag & Paper Corp.	11¼	10¾	10⅞
United Paperboard Co.	5	5	5
U. S. Gypsum Co.	76¾	73¾	75½
U. S. Gypsum Co., pf.	175	175	175
West Virginia Pulp & Paper Co.	22	21⅛	22
West Virginia Pulp & Paper Co., pf.	107	107	107

BONDS

Abitibi Pulp & Paper Co. 5s '53	110⅛	110⅛	110⅛
Celotex Corp. 3¾s '55	....	....	....
Certain-Teed Products Corp. 5½s '48	101⅜	101	101
Champion Paper & Fibre Co. 4¾s '50	....	....	....
International Paper Co. 6s '55	107⅝	107⅝	107⅝
International Paper Co. 5s '47	103¾	103¾	103¾
Mead Corp. 3½s '53	....	....	....
West Virginia Pulp & Paper Co. 3s '54	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending June 3, 1944

STOCKS

	High	Low	Last
Great Northern Paper Co.	34	33	34
Hummel-Ross Fibre Corp.	6	5¼	5⅞
St. Regis Paper Co.	5	4⅜	4¾
St. Regis Paper Co., pf.	161	157	157
Taggart Corp.	5⅝	5⅜	5⅜

BONDS

American Writing Paper Co. 6s '61	101¼	100¾	100¼

Bags and Wrapping Short in Boston

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 5, 1944.—The merchants of Boston are in desperate straits for any kind of wrapping paper and paper bags. The supply of paper towels is also very short. Up to the present time there has been a little inventory in the merchants' hands and in the customers' hands to take care of immediate requirements, but these inventories have now been entirely exhausted. The merchants have been exceedingly hard put to distribute the little driblets that do come in in a fair manner to their regular customers to keep them going in some way. Every possible use is made of substitutes, but the next few months, it appears, conditions will be even worse, so that many laundries and retail stores will find themselves without paper. How they will continue to operate is causing a great deal of worry.

Urges Conservation of Paper

WASHINGTON, D. C., June 7, 1944.—The necessity for careful conservation and salvage of paper in all industrial and business enterprises was pointed out today by Rex Hovey, director of the Paper Division of the War Production Board.

"Every day officials of the Forest Products Bureau realize more and more the significance of paper in a multitude of uses throughout our complex war economy, both with reference to maintaining necessary levels of civilian subsistence, health and sanitation, as well as meeting growing demands of the armed services and other Governmental agencies," he said. "Each individual should realize that, even though he uses only a few ounces or pounds of paper each week, that amount multiplied by millions results in a considerable total tonnage," he added. "Cooperation in the waste paper drive was also urged on business houses and industrial plants."

Puget Sound Sells Subsidiaries

The Puget Sound Pulp and Timber Company has sold its Canadian timber subsidiaries to Canadian interests, President F. G. Stevenot has announced, for the equivalent of $5,000,000 in American funds, plus interest on deferred payments. An initial payment of $1,450,000 was received, $550,000 is due January 5, 1945, and the balance is payable serially over a period of years.

Under the terms of sale, the company has a 35-year option covering all exportable timber of pulp species produced on Crown Grant lands included in the properties.

Simplex Profits Up

The Simplex Paper Corporation for 1943 reports a net income of $210,677, or 73 cents a common share, against $130,000, or 45 cents a share, the year before.

Weyerhaeuser Nets $2.79

The Weyerhaeuser Timber Company for 1943 reports a net profit of $8,360,797, or $2.79 each, on 3,000,000 shares, against $8,606,173, or $2.87 a share the year before; net sales, $73,471,798 against $77,083,789.

West Virginia Earns Less

The West Virginia Pulp and Paper Company and subsidiaries for the six months to April 30, reports net profit, after $2,330,500 taxes, was $1,210,634, compared with net profit of $1,555,308 for similar period of previous year.

Albermarle Co. Nets $134,787

The Albermarle Paper Manufacturing Company for the year to March 31, reports a net income of $134,787, contrasted with net loss of $114,558 for previous fiscal year; net sales, $4,576,955, against $3,876,124.

United Paperboard Nets 6 Cents

The United Paperboard Company and subsidiaries for the nine months to February 26, reports net profit, $53,852, or 6 cents a share, on net sales of $3,666,772.

Pulpwood Receipts Under Last Year

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 31, 1944.—Total United States receipts of pulpwood in April showed an improvement of 19.5% over the same month a year ago, but 6.2% below receipts in April 1942, James L. Madden, deputy director in charge of pulpwood production, War Production Board Paper Division, said today.

April mill receipts of domestic pulpwood, totaling 1,131,473 cords, were 22 per cent higher than in 1943 but, as in the first quarter, receipts failed to meet actual needs for domestic wood during the period, Mr. Madden pointed out. April receipts in 1943 were 926,665 cords.

Imports of pulpwood from Canada in April totaled 72,183 cords, compared with 80,871 cords in April 1943. This brought the month's total receipts at U. S. mills this year to 1,203,656 cords, Mr. Madden said, but he cautioned that, although receipts in April were higher than a year ago, it should be realized that receipts were abnormally low during that earlier period. He added that it must also be taken into consideration that because of depleted inventories, the mills in the Northeast are being forced to get in, as fast as possible, the wood cut in the rough wood season.

An analysis of receipts shows that in the Northeast, where the pulpwood supply picture according to WPB is extremely critical, domestic receipts are 64,991 cords less than they were in March. The Lake States, which experienced a relatively high production of rough poplar earlier this year, shows a drop of 192,889 cords below March receipts. The Appalachian region receipts were 18,366 cords over the previous month.

The record of April receipts of domestically cut pulpwood by regions follows:

Appalachian	139,144 rough cords
Northeast	95,205 rough cords
Lake States	148,163 rough cords
South	523,486 rough cords
Pacific Northwest	225,475 rough cords

Imports of pulpwood by U. S. mills were distributed as follows in April:

Appalachian	200 rough cords
Northeast	46,577 rough cords
Lake States	19,616 rough cords
Pacific Northwest	5,790 rough cords

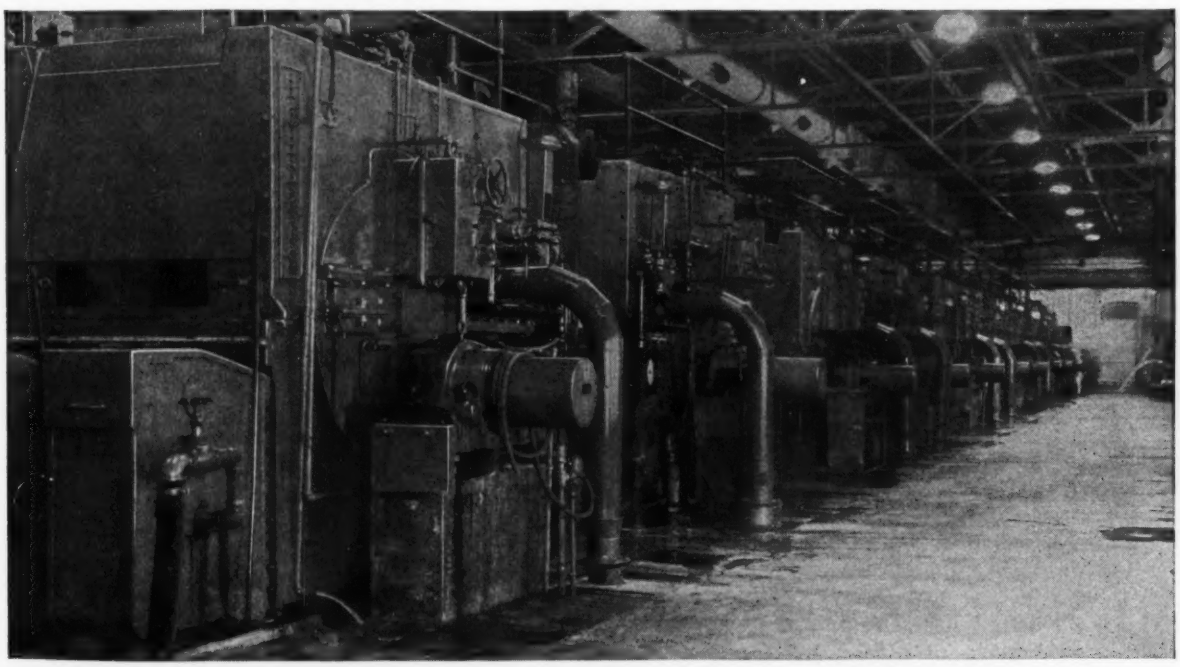
Changes in Paperboard Division

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 1, 1944.—The resignation of Willard L. Davis as assistant director of the Paperboard Division of the War Production Board was announced today by Russell W. Whitney, acting director of the division.

"The services of Mr. Davis have been of great value to the division and the paperboard industry for nearly a year," Mr. Whitney said, "and it is with sincere regret that we release him to return to The Hankins Container Company, in Cleveland, Ohio.

The appointment of Marc Shofer, formerly of the Iowa Fibrebox Company, of Keokuk, Iowa, as assistant director of the division, was also announced by Mr. Whitney. Mr. Shofer, a native of Richmond, Ind., has been with the WPB Paperboard Division since May 4, 1944, when he was released as vice president of the Iowa Fibrebox Company, where he had been for 18 years. His experience also includes service with the Des Moines Container Company, and the ABC Corrugated Box Company, of St. Paul, Minn.



500 TONS OF GROUNDWOOD PULP A DAY

Continuous, high-speed grinding is a faster and more profitable way to grind pulp for paper or board. Eleven Roberts Grinders more than replace the 31 pocket grinders formerly used in this mill. Not only is daily tonnage increased and manufacturing costs cut, the pulp is more uniform and of higher quality. There is much less waste. The future looks especially bright for groundwood pulp now that improved color and permanence have been added. When restrictions are lifted the new, continuous Roberts Grinder will be available to help meet heavy post-war demands with greater manufacturing efficiency and convenience. Write for detailed information to—

The Appleton Machine Company, Appleton, Wisconsin.

PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger, Editor

COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

Chicago Professional Paper Group—First Monday of each month except July and August at Chicago, Ill.

PAPER PRODUCTION

Production figures have indicated during the war years the consistent record of the paper industry in its cooperation with the government to achieve victory. Despite the manpower shortage, the industry has been very successful in its employment of women to fill many of the jobs formerly filled only by men. Production ratios have been maintained at higher than 90% on the average, although some divisions of the industry are now curtailed to less than 70% of capacity. For the week ended May 20 production at 91.6% was only factionally below the output in 1943, and 2.3% below production for the corresponding week in 1942. Paper board production has also been held at a high level. The production ratio for the week ended May 20 was 97%, or one per cent higher than in 1943, and 16% higher than for the correspondng week in 1942. Production trends in pulpwood, wood pulp and in mill receipts of waste paper are upward. Inventories of pulpwood are upward as are inventories of paper stock, but wood pulp inventories are low and latest reports do not reflect any improvement in the first quarter of the current year or to date.

Production of all major grades of paper in the first 1944 quarter, totaled 2,089,000 tons, compared with an output of 2,122,000 tons in the like period in 1943, or a decline of 1.6%. The average monthly production in the first 1944 quarter was 696,000 tons, compared with 707,000 tons in the first quarter of 1943. The production of ground wood papers of 147,000 tons, was the same in the first quarter of 1944-43. The largest increase in output was in multi-wall sack papers, of 58,000 tons, an increase of 46% over the 1943 quarter; in absorbent papers, of 24,000 tons, which increased 20%; in special industrial papers of 58,000 tons, which increased 18.4%; in building papers, 227,000 tons, which increased 3.2%; in tissue papers, 41,000 tons, which increased 2.5%, and in wrapper paper, 509,000 tons, which increased one percent. Decreased production in the first 1944 quarter below the first 1943 quarter are indicated in newsprint, 15.5%; in book papers, 9%, and in fine papers, 6.9%.

Paper board production, all grades, increased 5.6% in the first 1944 quarter, compared with the first 1943 quarterly period. While the output of 183,000 tons in setup boxboard decreased 14.9%, container board increased 5.9%; folding boxboard, 2.7%; cardboard, 13.3%; building board, 1.9%; miscellaneous boards, 63.7%, and tube stock, 95.5%.

In its latest excellent report, the Department of Commerce states that, "Even though pulpwood receipts during ensuing quarters are maintained at a level approximating receipts in the preceding corresponding quarters, and even though wood pulp production and aggregate waste paper receipts are similarly maintained, supplies of many types of paper for civilian uses will continue to diminish. This conclusion assumes that the war requirements will remain at the current high rates. The key to maintaining paper supplies for most civilian uses, including paper for packaging purposes, as well as various categories of printing papers and some grades of writing papers, lies primarily in sulphate pulp and increased production of pulpwood in the southern area. In terms of volume, the principal war requirements are for paper and paper board containing high percentages of sulphate pulp. Outstanding in this field are paper board shipping containers, multi-wall bags, and special wrapping and industrial papers. War requirements for these types of products have been on an upward trend for many months and are continuing to increase. Although aggregate production of kraft pulp and kraft paper and paper board has been maintained at a moderately higher level than in previous months, output has not kept pace with the increased war needs, resulting in smaller supplies for numerous civilian uses. To supplement such supplies for war purposes, mills have increased the use of sulphite pulp in their production, which in turn has drawn upon grades of sulphite pulp which otherwise would have gone into some grades of writing papers and printing papers."

In commenting on the outlook, the Department reports states in part: "The net result is, that even though graft pulp output is being sustained, the aggregate supply of pulp plus waste kraft paper and board, in total, is smaller than in prior months. . . . Many mills are turning to grades of sulphite pulp or certain grades of nonkraft or low-kraft-content waste paper in the production of products formerly having higher percentages of kraft fiber. In turn, this is being reflected in less sulphite and other nonkraft grades of pulp, as well as nonkraft waste paper available for many grades of civilian use paper. The only apparent solution to this outlook of diminishing paper supplies for civilian uses is a stepping up of pulpwood output, primarily in the southern area, with an increasing production of sulphate wood pulp. . . . The first quarter of 1944 has disclosed comparatively favorable trends in terms of pulpwood and waste paper receipts, wood pulp output, and production of paper and paper board compared with the previous quarter and the same quarter of 1943. Nevertheless, the prospects

for the second and third quarters cannot be considered with optimism; but increased efforts toward maintaining the necessary production levels will be necessary."

Rules On Paper Board Commissions

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 31, 1944.—No broker's commission, finder's fee, or any other charge for services rendered in obtaining supplies of paper board may be paid by purchasers of paper board sold east of the Rocky Mountains, the Office of Price Administration announced today.

OPA said that, as a result of the shortage of paper board, brokers have approached buyers and have offered to obtain supplies for them at a commission. As a result, the buyer accepting this service pays a total amount in excess of the established ceiling price. Prior to today's action, there was no prohibition against the separate payment of a commission by a purchaser, provided he did not pay more than the ceiling price to the seller.

Today's express prohibition of these payments, which becomes effective May 29, 1944, was decided upon after consultation with representatives of both buyers and sellers, who were almost unanimously in favor of the action being taken. The banning of commissions and like fees is in accord with the established business practices of this industry in normal times.

Commissions of this nature do not increase the total supply, and moreover the expenses incurred by such charges would raise the costs of the buyer unnecessarily and increase the price pressure on his products, OPA pointed out.

OPA Rules on Tissue Prices

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 31, 1944.—If two conditions can be met, manufacturers of paper napkins and facial tissue may apply for an increase in their ceiling prices, the Office of Price Administration announced today.

Any increase which might be granted by OPA would be passed on by paper distributors to their customers, who may be retail stores, hotels, restaurants, or institutions, the price agency said. No increases in price can now be made at the retail level, however, as retailers are held to their highest March 1942 prices on both paper napkins and facial tissue. Manufacturers heretofore have been held to their highest March 1942 prices.

The two conditions which manufacturers must meet to obtain an adjustment in their ceilings are that (1) existing ceilings are causing them substantial hardship, and (2) either continuance of their production is required to meet a military or essential civilian need, or loss of their production will force their customers to resort to higher priced sources of supply and no adequate substitute is available to these customers at a price equal to or lower than the increased ceiling price requested.

D. P. Winne Leases Building

The D. P. Winne Company, Inc., paper and twine, has leased the five-story and basement building at 162 Chambers Street, New York, for ten years through Anthony F. Amico.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1944		Corresponding Weeks—1942	
April 22	91.3	April 24	89.7
April 29	90.9	May 1	85.8
May 6	91.5	May 8	90.6
May 13	89.6	May 15	91.1
May 20	91.6	May 22	92.2
May 27	*91.7*	May 29	91.8

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1943	87.2	88.9	89.5	88.7	91.4	84.8	84.3
1944	89.6	89.6	90.1	*89.5*			

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg
1943	91.0	88.3	89.6	89.6	82.0	87.8

COMPARATIVE YEARLY SUMMARIES

	1937	1938	1939	1940	1941	1942	1943	1944
Year to Date	89.6	67.8	80.1	86.3	92.4	101.3	89.2	*90.3*
Year Average	79.8	71.5	83.4	85.6	97.4	90.4	87.8	

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1938	56	63	63	60	60	59	59	69	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	83	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	75	76	81	82	77	84
1943	86	88	94	94	96	94	89	96	94	94	93	87	93
1944	90	96	95	*96*									

Week ending April 22, 1944—98
Week ending April 29, 1944—98
Week ending May 6, 1944—98
Week ending May 13, 1944—95
Week ending May 20, 1944—97
Week ending May 27, 1944—*96*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

Price Adjustment of Converted Items

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 31, 1944.—Producers of a variety of converted paper products were provided by the Office of Price Administration today with a method of obtaining individual adjustments in their ceilings, provided two conditions can be met.

The conditions are: (1) That their maximum prices are subjecting them to substantial hardship, and (2) either continuance of the production is required to meet a military or essential civilian need, or loss of the production will force their customers to resort to higher-priced sources of supply.

Today's action has been taken because it appears that existing ceiling prices for these products may threaten to impede the continued production of some items, OPA explained. Applications must be filed with OPA at Washington, D. C., when adjustments are requested. None of the adjustments requested, if granted, would affect retail prices, the agency said.

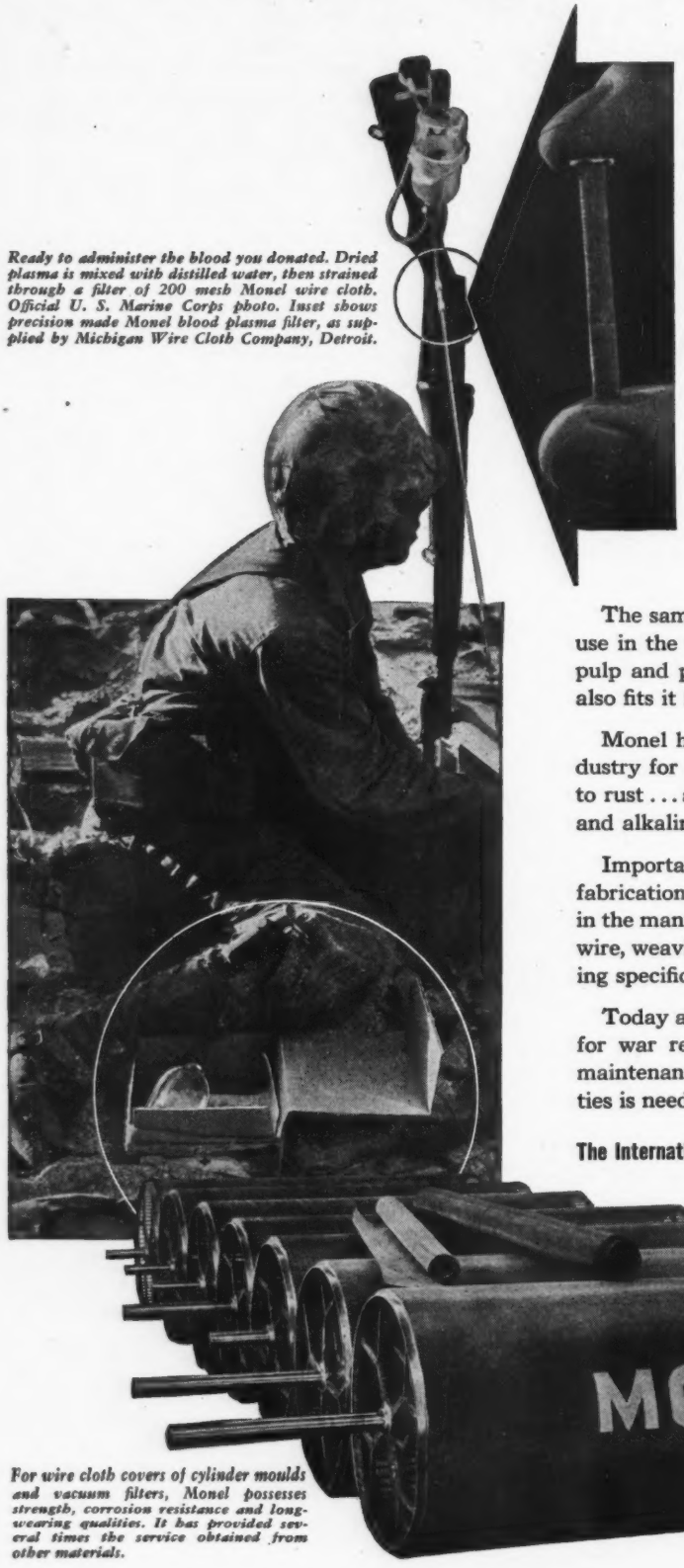
Producers of the following articles are affected: Envelopes, paper cups and paper containers, sanitary closures and milk bottle caps, drinking straws, certain sulphate and certain sulphite papers, certain tissue papers, rope and jute papers, technical papers, gummed papers, tags, pin tickets and marking machine tickets, glazed and fancy papers, and unprinted single weight crepe paper in folds.

Howard Specialty Co. Incorporates

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 5, 1944.—The Howard Specialty Company, 51 Melcher street, has been incorporated for manufacturing paper products with a capital stock of 100 common shares of no par value. Bernard J. Cohen is president; Charles S. Walkup, Jr., 6 Winthrop street, Roxbury, treasurer, and Helen A. Fermoyle is the third incorporator.

Maintaining the flow of Life ...and Paper



Ready to administer the blood you donated. Dried plasma is mixed with distilled water, then strained through a filter of 200 mesh Monel wire cloth. Official U. S. Marine Corps photo. Inset shows precision made Monel blood plasma filter, as supplied by Michigan Wire Cloth Company, Detroit.

Before blood plasma is administered, it is strained through a tiny filter.

Dried, undissolved particles of plasma are thus prevented from clogging the hypodermic needle or from entering the patient's blood stream.

Hundreds of thousands of filters are today made of 200 mesh Monel wire cloth. Rolled from a 1" x 1½" strip and then closed at one end, the little cylinder contains 60,000 openings... *and rust or corrosion will never clog a single one of them.*

The same combination of properties that fits Monel for use in the vacuum filters and cylinder moulds that make pulp and paperboard for the carton at the soldier's feet, also fits it for this important use.

Monel has long been known to the pulp and paper industry for its high strength and ductility... its immunity to rust... and its superior resistance to corrosion by acid and alkaline stocks and solutions.

Important, too, is Monel's workability... its ease of fabrication. That is a critical factor throughout each step in the manufacture of this tiny filter—drawing the delicate wire, weaving it, and finally fabricating the cloth to exacting specifications.

Today all prominent weavers produce Monel wire cloth for war requirements and for essential production and maintenance where Monel's rare combination of properties is needed.

The International Nickel Company, Inc., 67 Wall St., New York 5, N. Y.

For wire cloth covers of cylinder moulds and vacuum filters, Monel possesses strength, corrosion resistance and long-wearing qualities. It has provided several times the service obtained from other materials.

Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY
122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

Machine Coating and Its Application to Board*

By J. R. Simpson[1]

Abstract

Machine coated paper and paperboard were the results of efforts to produce a coated sheet at a lower cost. The printing characteristics are very much improved by coating but paperboard in contrast to paper does not have the economic advantage possessed by the latter in that it is sold on the basis of caliper and area rather than on weight.

It should be recognized that machine coating is not predicated on prior knowledge of the older coating processes.

An interesting board machine erected in Australia is mentioned.

One of the most notable advances in the art of papermaking during the past decade has been the development of processes for the application of coating compositions in substantial amounts to the surface of the paper web directly in its manufacture on the paper machine. Today, a vast tonnage of this machine coated paper is being produced, particularly in the magazine and publication field.

Naturally, the question arises, can the principles of machine coating found so successful in paper manufacture be applied to board grades? Can these processes which are useful on light-weight fourdrinier papers be adapted for use on cylinder machines making various board products? The answer is, that these processes not only can be developed but they have been and are today in commercial operation on several board machines.

In order that we understand each other it might be well to establish at this point what is generally understood when we refer to machine coating. Machine coating is the application of a coating mix of fairly heavy solids consisting chiefly of clay or other pigments plus an adhesive applied to the sheet while still in the process of manufacture.

This type of coating was started approximately 10 years ago; however, prior to that time several mills were using the surface filling or semicoat idea simply to correct the two-sidedness of a fourdrinier sheet. In semicoating the object was to fill the surface pores with a coating composition but leaving the sheet in a substantially uncoated condition. In other words, the surface of the paper was predominantly fibrous with little or no noticeable improvement in the printability of the sheet.

The later development—namely "Machine Coating" was the application of heavier layers of coating over practically the entire surface, greatly enhancing the printing qualities by producing a more uniform surface of superior ink receptivity. Thus, machine coating had its start and was developed primarily to fill the need for a sheet costing less yet having some of the characteristics of a fully coated sheet, especially with reference to color and printability.

Since then many machine coated grades have been developed and many publications are being printed on this type of paper; some publishers switched from the ordinary grades of supercalendered book to machine coat while others accepted it as a substitute for the regular coated product.

While the first machine coating process was installed some 10 years ago on a fourdrinier machine, it was not until about 7 years later that any attempt was made to commercially produce a machine coated board. Since then several successful installations have been made on board machines in various parts of the world; however, I think it is safe to say that the application of machine coating to board is still going through a similar phase of development that the fine paper manufacturers went through over 10 years ago.

One reason why machine coating was not applied to board grades earlier was the problem of producing a suitable surface for coating. As you know, the surface of board usually has considerable felt impressions and of course the formation of board seldom approaches that of a fourdrinier sheet, therefore, with the application of medium weights of coating as applied by most machine coating processes it is a problem to cover up these surface defects.

Board Machine in Australia

To illustrate this point I would like to recall an experience I had a few years ago. It was my good fortune to supervise the installation of a machine coating process on a board machine in one of the Australian Paper Manufacturers mills in Sydney. With your permission, I would like to digress from the subject of machine coating for a moment and talk to you briefly about the machine on which this installation was made as there were a few rather interesting features connected with this machine which might be of interest to this group.

This machine had a combination fourdrinier and

* Presented at the meeting of the American Pulp and Paper Mill Superintendents Association, Edgewater Beach Hotel, Chicago, Ill., May 24-26, 1944.

[1] Champion Paper and Fibre Co., Hamilton, Ohio.

cylinder wet end; however, the fourdrinier part had not been completed and was not in use.

The idea of the fourdrinier is to eventually form the liner on the fourdrinier then laminate this sheet with the cylinder sheet.

They also had, as I remember it, three or four suction type primary presses which seemed to be operating very satisfactorily.

The drier section consisted of fourteen 48-inch driers following the wet end, then a large 12 foot M. G. or Yankee drier followed by eighteen more driers.

This Yankee drier was equipped with a finely woven woolen felt and pressure rolls, the object being to smooth out the surface of the sheet by reducing the amount of felt mark while the sheet was still in a semiwet or plastic condition.

You no doubt will be interested in examining these samples, one taken immediately ahead and one immediately following this Yankee drier. The additional smoothness resulting from this operation did much toward making this particular machine coating installation a success. Incidentally, this machine was built in my home town—Hamilton, Ohio.

Benefits of Coating

What benefits are to be derived from the application of machine coating to the surface of a board sheet?

The answer is, if better color and better printing are desired, machine coating will produce both. There are of course other minor benefits such as better finish, a saving in ink, and the general appearance of the sheet is greatly enhanced; however, color and printability are the two main benefits derived from machine coating.

The degree of improvement in color depends on two definite factors, namely the brightness of the pigment used and the brightness of the surface to which the coating is applied.

Assuming that a coating formula comprised of an adhesive plus coating clay is used, a pick up in brightness of between 5 and 15 points might be expected on the G. E. Reflection Meter.

The duller or darker the surface before coating the greater will be the contrast in brightness between uncoated and coated. The most attractive sheets are usually produced by having the color of the base stock as close as possible to that of the coating color.

Printability on the other hand is more difficult to evaluate unless you compare the before and after results. I have with me exhibits of uncoated and coated products taken from different mills and made by two entirely different machine coating processes. In gathering these, an effort was made to choose sets of samples having identical or similar liner furnishes, each set of samples having been printed under identical conditions as to pressure and amounts and type of inks used.

Price Factors

I realize that while you may be very much impressed with the color and printing results you are also very much interested in the cost angle of applying machine coating to your machine and to your particular grades; also whether or not your machine speeds might be affected.

Compared to fourdrinier type machine coated papers, board manufacturers get a bad break in this respect. As you know, in making a machine coated fourdrinier sheet wherein the product is sold at a stipulated price per ton, for every pound of coating added to the surface of the sheet an equal amount of fiber can be removed from the body stock. Board on the other hand is generally sold on the basis of a stipulated price depending on caliper and per 1000 square feet of surface. As you well know, machine or any other type coatings never add to the caliper nor do they produce more square feet therefore the whole burden is laid in the lap of the board manufacturers and takes the form of an additional cost. Actually, coated board weighs more per 1000 square feet of surface than the uncoated product.

Without going into detail as to what constitutes the following figure I believe it safe to say that, based on the present prices of clays, casein, etc., the additional cost to board manufacturers would be less than 5 dollars per ton. This depends of course on whether or not the same type of liner furnish is to be used. Cheaper liner furnishes have been substituted in some cases with printing results improved over the more expensive uncoated surface.

The compensation to the board manufacturer producing a machine coated board lies in the fact that the sheet is vastly superior to the uncoated product and certainly should be worth the difference in the cost to the customer using the product.

Regarding speed, little or no reduction is made depending on whether the machine has been operating to its maximum drying capacity, in which case a reduction of less than 5% might be expected.

I do not know how many paper machines have actually been equipped with various types of machine coating processes, however, I do know that out of the ten installations I have personally supervised only two of the mills previously had a coating mill organization. I also know of several other mills successfully operating machine coating processes who had had no previous coating mill experience. I do not mean to imply that a machine coating process will operate without attention, far from it, but isn't it significant that a large percentage of the machine coating installations have been made in mills having no coating mill organization or experience and still continue to produce a very satisfactory and desirable product?

In discussing machine coating and its application to board with a friend who has been operating a machine coating process for a few years on one of his board machines, he stated that his customers were thoroughly sold on the idea of using this better grade. He also predicted a great future for any machine coating process which would produce a sheet of board having definitely better printing qualities than the uncoated product now being offered to the trade.

In conclusion may I add that while I am no prophet, I, too, predict a great future for machine coating. As the paper maker gains experience in producing the proper surface prior to coating, together with improved formulas and possibly coating techniques then we can expect to see paper and board produced directly on the paper machines which surpasses in quality anything produced to date.

Correction

In the PAPER TRADE JOURNAL (p. 38, April 20, 1944) there appeared a review of a McGraw-Hill book entitled "Applied Safety Engineering" by Berman and McCrone. The price should have been $2.00 instead of $5.00 as indicated.

Observations on Drier Drainage Systems*

By Paul L. Ulrich[1]

Abstract

In the papermaking operation, production is often limited by faulty drainage from the drier section. By the use of pyrometers one is able to check the complete system and to locate points at which an improvement may be made.

The drainage system should be so designed as to be automatic and sensitive to pressure changes. The different systems which employ syphons to remove the condensate are mentioned including blow through, use of a common header, and divided sections. The use of a properly designed steam trap is recommended.

Paper machine drainage is not a new subject. In the past much time and thought have been given to the problems involved in removing condensate and air from paper machine driers. This is as it should be since efficient drying is one of the most important considerations in the production of paper. A mill may have the very best and most efficient equipment available for preparing and placing the stock on the wire. However, unless the drying operation is satisfactory, production may be limited, with the result that the maximum possible return on the entire mill investment will not be realized.

In most cases when faulty drainage of the paper machine exists, it may be corrected at a relatively low expenditure and when such expenditure is viewed in the light of total mill investment, it is obvious that very substantial returns on the expenditure may be expected.

Assuming that a machine is not drying the maximum quantity of paper of which it should be capable, a study should be undertaken to determine just where the machine is at fault. The trouble may be in the press section, the vapor absorption or ventilating system, or in the stock preparation system. It may be that the felts or the draw are at fault. However, if these factors are found satisfactory, the drying section should be investigated. To make such an investigation some yardstick for drying performance is helpful. Such a yardstick is the maximum drier temperature possible with the steam pressure being used.

Temperature Measurement

Two methods may be employed to determine this temperature yardstick, and in our opinion both should be used, one as a check against the other. One method consists of taking the shell temperature with a good reliable surface pyrometer and the other consists of filing a spot on the drip line at a point near the steam joint and obtaining the temperature of the condensate leaving the drier with a point pyrometer. This should be checked against the temperature of the steam inlet to the drier. These temperatures should be taken with the machine in motion and with paper passing over the driers.

It should be pointed out that the shell temperatures will not be the same as those taken on the drip line. One might assume that the shell temperature will be lower than the drip line temperature as the heat supplied the sheet must travel through the iron of the shell. However, friction enters into the reading and as a result the shell temperature will probably be higher than the drip line readings. Variation in friction between driers will have some effect on the surface readings and judgment must be used when comparing results. It will generally be found that the first wet end driers are operating at lower temperature than the balance of the machine. However, if marked variations in drier temperature in the main drying section are observed, while this section is operating at constant pressure, faulty drainage is indicated. The highest drier temperature found may be used as a yardstick for performance of the main drying section of the machine and the amount of deviation of other driers from this temperature is a comparative measure of drainage efficiency.

If it is found that drier drainage does not provide maximum temperature for all the driers, the entire drainage system should be carefully studied with a view to increasing its efficiency to the extent that maximum results are being obtained from all driers on the machine.

Drainage System

This introduces the question of what constitutes a good drainage system for any given paper machine. Very briefly, a satisfactory drainage system is one which provides the maximum temperature for all the driers on the machine and at the same time does not waste steam or upset the heat balance of the mill in any way. The system should permit any desired variation in steam pressure on any section or on the entire machine without adjustment of any part other than the steam control valve. In other words the drainage system should be completely automatic and quickly responsive to pressure changes. Another consideration, of course, is cost, including installation and maintenance.

Inasmuch as maximum drier temperature is one of the prime requisites for any drainage system, we believe it fitting to examine in some detail the mechanics of attaining such temperatures.

The drainage of all steam heated equipment may be divided into two general types—those in which condensate flows by gravity to a low point from which it is discharged and those in which condensate must be raised through a syphon pipe to the point of discharge. The drainage of paper driers falls in the latter group. The use of syphon-drained rotating driers is by no means limited to the paper industry. Thousands of small light driers, or cans as they are better known, are used in the textile industry. A low steam pressure of 15 or 20 pounds is the rule. In contrast with these small driers are the large high pressure driers used on flat work ironers in power laundries which employ 100 to 120 pounds steam pressure.

Syphon drained driers are also used in the food and chemical industry for purposes of drying sludges, milk and other food products.

Action of Syphon

In all of these various types of syphon drained

* Presented at the meeting of the American Pulp and Paper Mill Superintendents Association, Edgewater Beach Hotel, Chicago, Ill., May 24-26, 1944.

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driers, the problem of removing air and condensate is present. From tests which have been made it is the opinion that the presence of condensate only in the drier is not of particular objection except that it requires additional power for the drier drive. However, as a result of the presence of condensate in a syphon drained unit, the air concentration may be greatly increased and air is a serious offender as far as maximum drier temperature is concerned.

To illustrate how excessive condensate can increase the accumulation of air in a drier, assume that the differential in pressure over the syphon pipe is not quite sufficient to lift the condensate from the inlet end of the pipe to the horizontal level at the steam joint. If a total pressure diflerential of 24 inches of water is required for this lift, and only 22 inches pressure differential is available, the condensate will accumulate within the drier until the level is 2 inches above the open end of the syphon pipe. With such a condition this syphon pipe becomes water sealed with no possibility of air or noncondensible gases being discharged with the result that the drier slowly cools as the concentration of air increases.

Dalton's law states that the total pressure of a mixture of gases is the sum of the partial pressures. To illustrate the importance of this law as applied to the mixture within a paper machine drier, assume a total pressure within the drier of 10.3 pounds gage which is 25 pounds absolute. Pure steam at this pressure has a temperature of 240.1° F. Now, assume that due to a water sealed syphon pipe air has accumulated until the gas within the drier consists of 90% steam and 10% air. The pressure will still be 25 pounds absolute. However, due to the presence of 10% air by volume, the absolute steam pressure will be reduced so that the resulting temperature will be 234.3° F. which is 5.8° below true steam temperature. If 20% air is present within the drier, the temperature of the mixture will be 228° which is 12.1° below true steam temperature and, of course, for higher concentration of air low dryer temperatures result. From the above it is obvious that if maximum drier temperatures are to be attained the drainage system must be capable of removing air as well as condensate.

The majority of the paper machines in operation are equipped with stationary syphon pipes. However, some high speed machines are provided with revolving syhons which rotate with the driers. If the steam blown through a drier with a stationary syphon is moderate, as is the case when the drier is equipped with a suitable trap, the water level will be kept slightly below the end of the syphon. If, however, a considerable amount of steam is blown through the drier, as is the case with a blow through system, the water level may be kept at a slightly greater distance —say 0.25 inch—below the end of the syphon. If the end of the pipe is an inch or more from the inner surface of the drier, the advantage of the slight lowering of the water level due to the high blow through would be of little practical value on low speed driers.

However, if the syphon inlet is held within 0.25 inch of the drier inner surface, then there would be considerable saving in the power to drive the machine at high speed. A very practical method of keeping the amount of water to a minimum in high speed driers is to place the end of the syphon in a sump in the inner surface of the dryer, and have it revolve with the drier. With this arrangement the inlet to the syphon is below the inner surface of the drier and the shell should be kept practically free of condensate accumulation.

Blow Through System

It may be said that drainage is a flow from the drier and a drainage system is a control of that flow. The rate of flow is a function of the size and shape of the discharge passage and the differential pressure over the passage. Some systems operate on the control of the differential pressure. This type of drainage is exemplified by the blow through system in which one group of driers blows through to a lower pressure and temperature group. This type of system requires a sufficient number of driers near the wet end to condense all the steam blown through from the initial section and the pressure carried on these wet end driers must be sufficiently lower than that carried in the initial section to provide sufficient differential for drainage of the initial driers. The second condensing section often discharges to the first one or two wet end driers which may be trapped or may blow to a receiver in which cold water make-up is added to kill the flash or blow through.

The amount of differential between the sections depends upon the quantity of blow through and the condensing capacity of the group of driers to which the blow-through is discharged. When the paper breaks the balance of pressure in the blow-through system is disturbed. Generally a flash or separating tank is provided between sections at which point condensate is trapped off. There are many variations of this type of system. Sometimes a restriction is placed in the drip lines from the individual driers the function of which is to cut down the amount of blow-through and thus reduce the number of lower pressure-temperature driers necessary to condense the blow-through.

Group Discharge to Common Header

Another type of system utilizes one trap draining the drip header for a group of driers. In our opinion this type of system does not result in good drainage and perhaps a brief review of the reasons for this statement is in order.

In the first place all driers in the group discharge to a common drip header from which condensate is drained but from which no steam is taken. Some of the driers in the group are condensing more steam than others due to the fact that the moisture content of the sheet varies as it passes over the machine. The steam flow and, therefore the pressure drop in the individual steam supply lines, is greater for those driers doing the most work and as a result slightly lower pressure is obtained within the drier itself. The driers doing the least work in the section produce the least condensate and therefore blow the most steam through the syphon pipe, with the result that the pressure within the drip header builds up to a point where the differential just balances the pressure necessary to bring the condensate up over the syphon pipe of the driers doing the least work. As a result there will not be sufficient differential to lift the condensate the entire distance from the inlet of the syphon to the steam joint of the harder working driers and therefore, the condensate accumulates in the higher condensing driers until the inlet end of the syphon is sealed.

After this happens any air or noncondensible gas entering the drier with the steam is trapped within the drier causing lowered operating temperatures. After a sufficient accumulation of air occurs in the drier, its heat transfer and condensing rate is lowered until the pressure drop in the individual steam supply is equal to, or less than that for other driers at which time the

drier will be purged of both condensate and air and its normal temperature will again be restored. During this process which incidentally takes time, other driers may be going through the same cycle. Obviously this type of drainage does not give the best results and temperatures are often erratic.

As mentioned previously and at the expense of repetition, an ideal drainage system is one which provides the maximum temperature consistent with the steam pressure, for all the driers on the machine and which utilizes the maximum amount of heat in the steam on the machine, with a minimum quantity of heat rejected. Such a system should be capable of flexibility of design so that, if desired, different groups of driers may be operated at different temperatures. Durability and freedom from maintenance are important considerations. The system should be quickly responsive to desired pressure changes on the machine. There should be no steam waste and the first cost of the system should be reasonable.

Steam Trap System

In our opinion a system which fulfills all the above requirements is one which employs a steam trap for every drier. Systems of this type were installed years ago and attained considerable vogue. Some of these original installations are still in use. However, in general, unsatisfactory results were obtained, and this type of system fell into disrepute and deservedly so, since at that time many machines were equipped with traps requiring excessive maintenance and with low air venting capacity. Much progress has been made in trap design over the years and much better materials for trap construction are now available than was the case years ago. The design has been greatly simplified and many moving parts eliminated so that the wear in a modern steam trap specially designed for paper machine drier service is practically negligible. The way to obtain long and satisfactory service from traps on syphon drained driers has been found within just the last few years and the steam trap of today is an entirely different piece of equipment than its predecessor of a few years back.

Action of Trap. With the trap installed in the drip line of each drier, we have an automatic device which will allow the passage of condensate and air from the drier as rapidly as it collects within the drier. However, to accomplish this end it is important that the trap be designed especially for this type of service. To illustrate the importance of this statement let us for a moment consider a syphon drained drier 48 inches in diameter. Let's assume that the steam pressure in the drier is exactly 10.3 pounds gage. The vertical lift in the syphon is approximately 2 feet. If the end of the syphon is submerged in water the pressure at that portion of the syphon passing through the steam joint will be 10.3 pounds gage, less the static head of approximately 2 feet of water. This results in a pressure in the high point of the syphon of approximately 9.3 pounds. The syphon pipe within the drier is surrounded with steam which eliminates the possibility of any radiation from the condensate passing through the syphon.

It is a well known fact that when the pressure on condensate at steam temperature is dropped, some reevaporation of the condensate takes place. This reevaporation is generally referred to as "flash". In the case of the drier which we have assumed we find that there will be a drop of at least a pound in lifting the condensate up over the syphon. At 10.3 pounds gage which we have assumed as the pressure within the drier, the heat in a pound of condensate will be 208.4 B.t.u. However, after the pound pressure drop experienced in lifting the condensate over the syphon, the heat of the liquid will be 206.1 B.t.u. This represents the liberation of 2.3 B.t.u. for every pound of condensate passing through the syphon, and this 2.3 B.t.u. will be used to reevaporate some of the condensate. The latent heat of steam at 9.3 pounds gage is 953.5 B.t.u. Therefore, the weight of condensate reevaporated per pound will be $(2.3 \div 953.5) \times 1$ or .0024 pounds. If we assume our hypothetical drier to be condensing 500 pounds per hour, we find that we have $500 \times .0024$ or 1.2 pounds of flash per hour. Now steam at 9.3 pounds gage occupies 16.93 cubic feet per pound. Therefore, there will be 1.2×16.93 or 20.32 cubic feet of flash steam per hour formed in the syphon from the drier.

Trap Design. All inverted bucket steam traps have a vent in the top of the bucket, the function of which is to pass any air or noncondensible gas entering the trap. A standard ¾-inch Armstrong trap has a bucket vent that will pass approximately 7 cubic feet of free gas per hour. This gas may be air, a mixture of air and steam, or pure steam. In a standard trap the amount of steam that will pass through the vent is slightly less than that condensed by radiation from the trap body. In our hypothetical drier we have found that the quantity of flash formed in the syphon is 20.32 cubic feet and the problem now faced is how to pass 20.32 cubic feet of steam plus considerable air through a trap that will, at the best, pass only 7 cubic feet.

This problem has been completely and simply solved by providing adequate bucket vents for traps installed in connection with syphon drained rotating driers. In fact very close control over the amount of gas passing through an inverted bucket trap can be obtained by the proper combination of bucket vent size and discharge orifice. The size vent to be provided depends upon the cubic capacity of the drier, the diameter of the drier (which governs the per cent of flash formed in the syphon), and the steam pressure. Allowable warm-up time is also a factor. With all the above data available the proper vent size can be quickly determined.

In short, a steam trap of the proper design will keep a drier free of both air and condensate and by so doing it will accomplish the optimum as far as drainage is concerned, and at the same time maintenance is practically *nil* if the trap is constructed for this special service.

When individual traps are used, the pressure on any drier or group of driers can be varied at will without any adverse effect on drainage of other dryers on the machine.

If the type of paper being manufactured does not require a group of low temperature driers at the wet end, the entire machine may be supplied from one common steam header and all the traps can discharge into a common drip header. If the condensate is discharged to a hot well, or heater, no pump is necessary provided the pressures being used on the machine are sufficiently high to cause the condensate to flow to the hot well or heater.

Multiple Drier Section System

If it is desired to divide the machine into two or more pressure sections this is easily accomplished. Such a system is shown in Fig. 1. It will be noted that

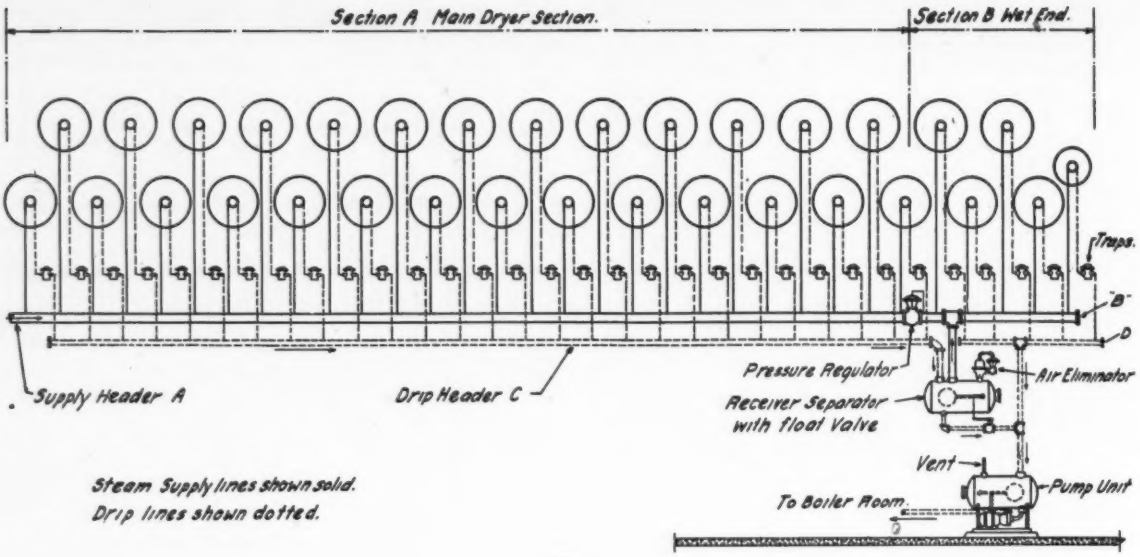

FIG. 1
Paper Machine Two Section Drainage System

in this system steam enters the machine through supply header "A" and all the driers of section A receive steam directly from this source. Each drier of section A is equipped with a trap specially designed for the purpose. Condensate and air from the A section driers are discharged into drip header C which in turn discharges into the receiver shown. A self-compensating air eliminator is provided on top of the receiver for relieving air to atmosphere that is passed by the traps on the A section driers. Flash steam from header C passes from the receiver to header B, which supplies steam to the B section of the machine. Each drier of the B section is individually trapped and these traps discharge into header D.

The combined condensing capacity of the driers of section B is greater than the total amount of flash available from the trap discharge of section A and to make up this deficiency a pressure regulating valve is installed between supply headers A and B. With a system as shown in Fig. 1, it is possible to carry a low pressure on the wet end section B and with this arrangement the temperature of all the condensate leaving the machine will be sufficiently low that practically no heat in the form of steam is lost from the machine. With the low-pressure wet end section shown it is necessary to use a condensate pump and receiver to return the condensate to the boiler room. The pump may be dispensed with, however, if a sufficiently high pressure can be carried on section B to force the condensate to flow to the boiler room. With this procedure, however, more flash will be liberated from the condensate and more heat carried away from the machine. Trapped systems operate just as satisfactorily under vacuum as under positive pressure as long as sufficient differential is maintained over the trap for drainage.

The exact layout of any system depends upon mill conditions and the heat balance, therefore each installation should receive careful consideration in order to best fit the system to the existing conditions.

Paper and Electronics*

By A. J. Germain[1] and R. R. Baker[1]

Abstract

A brief summary of some of the newer applications of electrical equipment which are used or may be adapted by the paper industry is presented herein.

Occasionally we are aroused from our nonchalant acceptance of the things around us by the use of a startling word or new expression.

Electricity, alias "Electronics" has been an important helper as well as a gentle manipulator of paper and paper products.

Electricity, plus the human element, was doing a remarkable job. However, it was felt that a more finite control was needed. The paper people, as well as the electrical people, associated with the paper industry, began to look around for a better means of process control. The question then was—what to use and how to use it.

In looking around the following things were noted:

Roentgen was looking inside of man with his X-ray tube. Edison was turning night into day with his electric lamp. Marconi, De Forest, and Bell were projecting their voices and thoughts around the world. Hertz and Geitel had taken elements from the earth and by exposing them to light were generating electricity.

All these men had one thing in common—they were

* Presented at the meeting of the American Pulp and Paper Mill Superintendents Association, Edgewater Beach Hotel, Chicago, Ill., May 24-26, 1944.

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bottling electricity, so to speak. That is, they were using glass containers to not only pass but also control the flow of electricity in finite steps.

Investigations were made—research was extended and then one day—a new word "Electronics"—a right hand man for our faithful servant electricity.

Paper, like many other products, must be handled and controlled with care. With the adoption of electronics the paper industry took a new lease on life; with the following results:

Regulators

Many years ago Westinghouse recognized the need in the paper industry for a speed regulation device for the paper machine that would provide the close speed regulation so necessary for the production of a uniform product. Prior to that time, many different regulating devices had been used, all adapted from existing designs, developed for the exacting requirements of the paper machine. The regulator had to be designed to respond quickly and accurately to changes in load, due to the changing of press weights, the adjustment of doctor pressures, changes in vacuum, or any other of the variables that would affect the speed and hence the uniformity of the finished product. For meeting these requirements, the regulator must be dependable and requires a minimum of maintenance. The answer was found in electronics.

The electronics tube regulator is entirely automatic in operation. It functions without time delay or mechanical inertia. There are no moving parts, no friction, corrections in speed are swift and sure. In this application, the electronic tube performs the functions of amplification and controlling. An electronic tube device amplifies the impulse first detected by the pilot exciter and instantaneously applies corrective forces through other electronic tubes.

On sectional electric drives too, electronic regulators have been in successful operation in a number of mills. In this case, the regulator is similar in general design, to the single motor drive speed regulator excepting that it functions as a voltage regulator to accurately maintain the voltage of the main generator and all of the individual section motors. In this application, two regulators are used for each drive, one for maintaining accurate exciter voltage and the other operating in the main generator circuit.

Motor Control

Many motor drive problems, particularly those connected with converting machinery, slitters, winders, and packaging machinery, are best solved by the characteristics inherent in a shunt wound d.c. motor. The most universal availability of a.c. power and relative unavailability of d.c. power has made it much more difficult to use the desirable d.c. motor for those drive applications requiring adjustable speed over relatively wide speed range. There has also been a growing desire for a greater nicety of control that can be readily obtained even if a d.c. system is available. An electronic control has now been developed which operates a d.c. motor from an a.c. line and has additional desirable features not previously available. The electronic adjustable speed drive consists of a d.c. shunt wound motor whose field and armature are energized by separate thyratron rectifier circuits. These rectifiers are so controlled as to vary the input to the motor, regulate the motor speed to a preset value, and limit the maximum current furnished the motor during acceleration and reversal.

The control permits smooth stepless adjustment of motor speed over a range of at least 20:1 below the base speed of the motor, and over an additional field control range of as much as 4:1 above the base speed of the motor. This speed control is readily obtained over the full range below and above basic speed by means of a small dial located in the pushbutton station convenient to the operator.

Combined with the wide range of speed control is the very flat speed-torque characteristics over the whole range. This is obtained by speed regulating circuits which insure that the motor will be held to the preset speed chosen by the operator. In a properly adjusted system, the speed over a 10:1 range below basic speed will not vary more than 4% from a preset value with torque varying from no load to full load, nor will it vary more than 8% for any speed within the speed range of 20:1. Normal variations in a.c. voltage have only a small effect on the speed regulation.

Photoelectric Cell Applications

Indicating Paper Breaks

A photoelectric cell or electric eye, in combination with an electronic tube has been used frequently to signal or record a wet end break. No mechanical device touches the sheet, but instead, a beam of light is focused on a photocell in such a way that when the sheet is intact, it prevents the light from reaching the cell.

If a break occurs, the light strikes the phototube and an electronic tube amplifies the electrical impulse thus generated, to light a signal lamp or sound an alarm. This instantaneous signal saves time in reestablishing the sheet and also enables the operators to release the calender weights before the tailings can mark the rolls.

Register Cutter Regulator

A regulator used frequently in paper, cellophane, and glassine processing, is that for maintaining the position of cut when taking from a roll of preprinted stock for making bags or packages. Although the machine feeds paper at a rate approximately correct to match the speed of the rotating knife, the cut will never remain registered perfectly without either manual or automatic supervision. A register regulator corrects for changes of paper slippage, stretch, and speed relative to the cutter speed. The position of the printed material is indicated by a rectangular register mark in the design or margin which is scanned by a phototube. The position of the mark with respect to the cutter is checked and the speed of paper feed modified if necessary.

Slitter Regulator

When slitting strip material, it is often necessary to regulate the sideways position of the web to insure cutting at the proper point relative to a trademark of printed design. The slitter regulator scans the edge of the paper web or a line in the printed design. The proper web position is obtained by moving the roll of material to the position called for by the phototube in the scanning device. The same device is used to scan the edge of a web and correct the roll position to insure smooth roll wind-up when rewinding mill rolls.

Sorting and Counting

Much loose publicity has been given to the use of

phototubes for sorting applications. It should be realized that the phototube responds only to a difference of light energy reaching it and also in some degree to changes of the color of the light. The phototube does not have any intelligence, and therefore, cannot duplicate the performance of the human eye for the great majority of sorting problems. The only way in which a phototube can be made to appear to have judgment or intelligence, is to so design the optical system that the phototubes will receive a varying amount of light, depending upon a particular characteristic of the material which it is desired to detect. The application of phototubes to sorting problems is usually very expensive because of the considerable development involved and many times cannot be justified for that reason alone.

Many applications for photoelectric control can be taken care of by general purpose devices called photoelectric relays which may be considered as light sensitive limit switches. These are available in varying forms and at varying prices, depending upon the desired sensitivity and functions to be performed and can be adapted by the purchaser to his own application. These include counting, drinking foundtain control, door control, conveyor control, and many others known only to the many users.

To a large degree, paper and paper chemistry made use of electricity as supplied by local power companies, usually alternating in nature. Conversion of electricity from one form to another in a simple way was found in the "Ignitron," another electronic development of considerable merit.

Ignition rectifiers introduce a basically new principle in the utilization of the rectifying property of the mercury vapor arc, which greatly increases the efficiency of power conversion in the 250 to 900 volt range. Under this new principle it is possible to design a rectifier which more nearly approaches the theoretical efficiency of the mercury arc.

The phenomenon on which the mercury arc rectifier is based is the fact that in an ionized gas at low pressures, only a small positive potential with respect to the gas is required to cause current to flow to an electrode, while a large negative potential can be applied before appreciable current flows. The cathode, or negative terminal must supply electrons. With a cathode spot on the negative electrode, in the presence of a gas an anode will pick up current when a positive potential is applied. Without a cathode spot, the negative electrode will not supply electrons and no current will flow.

Since a cathode spot cannot be created reliably in a low pressure gas by the application of high voltage, it is necessary to start a rectifier by some other means. In the multianode tank rectifier, the arc is established by separating electrodes having an applied potential at the cathode surface. The cathode spot thus formed is maintained continuously by a small current to an auxiliary anode. This arc current maintains sufficient ionization for reliable pickup of the main anodes. The continuous presence of ionized gas, which includes the time that the anodes are bearing reverse voltage, greatly facilitates the formation of a cathode spot on an anode, which materializes in a short circuit in the reverse direction, as an arc-back.

The Ignition principle provides a method of starting an arc reliably in a few microseconds. This method of starting an arc is based on the fact that when current is passed between a high resistance and low resistance material in contact, a gradient may be set up at the junction sufficient to create a cathode spot. This method is amenable to synchronous application. With such a system of ignition, the arc may be permitted to extinguish at the end of each conducting period. This leaves the anode surrounded by a deionized gas during the time that it is bearing a reverse voltage. Of course, in order to take advantage of this method of operation, each anode with its own cathode is mounted in a separate chamber, thus removing it from the influence of other anodes when they are conducting current. This permits a reduction of the shields and grids to the minimum necessary to take care of the transition periods and permits the location of the anode close to the cathode with a consequently low arc-drop.

Electronics, the right hand man of electricity, is still climbing and now is offering for your consideration a method of applying heat uniformly in your products, instead of the older method of from the outside in.

High frequency heating is divided into two classes:[2] induction heating for metals and dielectric heating for nonmetals. The characteristic advantages of high-frequency heating are (1) rapid and readily controlled rates of heating, combined with (2) the ability to generate heat within the work itself.

Induction heating has wide application in all metal-working fields. As a better method of melting, heat-treating, hardening, brazing, and soldering, it is already in wide use. Its many advantages, the wide variety of applications possible, make it particularly adaptable to many other manufacturing methods, which use heat, or can be improved by the use of heat.

Induction heating can be used for either penetrating or surface heating. It is an excellent source of steady heat; clean, fast, readily controlled, and usually requires no bulky equipment.

It also has the ability to "crowd" heat on the surface of the piece where there is a sufficient depth of material and to apply it with such speed and accurate control of depth that the interior of the part is unaffected.

Dielectric heating differs from induction heating in that it has the ability to generate heat within nonmetallic materials. It can be applied to the production of plywood, wallboard, impregnated wood, to cure rubber, thermosetting plastics and heat thermoplastics as well as many other heat-formed materials. It has the advantages of providing uniform heat throughout the product, without injury to the finish or structural qualities, generally increasing its strength and often cutting production time from hours to minutes.

Need we remind you that the present day uses are many, and the future possibilities limited only by human ability to devise and apply.

Scores of competent engineers have written treatises on design, operation, and maintenance of electronic devices, therefore, it is the intent of this short paper to merely call your attention to the subject of electronics.

In conclusion—let us remind you that, if we continue to look upon, and use electronics as a *function* of electricity rather than an apparatus, the benefits to accrue will be great indeed.

[2] There are a *few* exceptions to the above classifications, however they shall not be considered in this paper.

Slices and Methods of Improving Fourdrinier Sheet Formation*

By J. E. Goodwillie[1]

Abstract

Four main requirements for good formation are freedom from clots, absence of streaks, good fiber distribution, and lack of two-sidedness. The causes of these defects are briefly considered. Because of the importance of the slice and head box on the formation of a sheet in a fourdrinier machine, their function is discussed together with modifications and improvements in construction.

There is probably no better way of exposing one's ignorance than to take the assignment of discussing slices and methods of improving fourdrinier sheet formation before the Fine Paper Group of the Superintendents' Association. There are as many different ideas about the combination of details involved here as there are superintendents. However, a comforting thought is that no one knows all about fourdrinier formation. With your permission, these remarks are to be considered a discussion by one individual of the subject with the hope that his angle of approach may be of interest to others.

Formation Requirements

Let us consider four main requirements for formation; first, a clear formation reasonably free of clots or small clouds; second, absence of streaks or other large faults; third, well developed strength both with and across machine direction; and fourth, a minimum of two-sidedness. With the idea of simplifying the discussion we shall first consider various ways in which formation may be impaired by the fourdrinier table itself, and then proceed upstream to the slice and head box.

Clotting

There is a distinct possibility that the small clots or clouds that often spoil the look-through of an otherwise good sheet may have been formed on the wire and after the flow left the slice lip. On the assumption that an improvement could be otherwise accomplished, steps have been taken to eliminate this type of imperfection by the use of more water, by changes in the head box to produce more life or agitation in the flow right up to the slice, introduction of rectifier rolls close to the slice, or greatly increasing the speed of rectifier roll rotation. In one instance and as an experiment, particularly violent agitation was produced just behind the slice, but the clots still persisted. In other words, in spite of efforts that probably resulted in fiber bundles being broken up and floated apart at the slice, in these instances they still formed on the wire. Since the same type of clot formation has been observed in light weight sheets run at high machine speeds and heavier sheets run at much lower speeds, it cannot be a matter of time on the wire permitting clot formation in the pool carried on the wire. These thoughts have led to a belief that water forced back up through the wire is often the cause of this difficulty. In support of this conclusion, we might consider that slow stocks, generally speaking, are far less prone to clot, probably because the rate of drainage through the wire is less with the slower stocks and less water is caught in the nip between table roll and wire, to be forced up through the forming sheet. The slower machine speeds usually prevailing with slower sheets is another step in the same direction.

If water forced back through the wire by table rolls causes clots by floating small pieces of the first mat of fibers forming on the wire out of their rightful positions, the remedy would be to prevent water passing in large quantities into the nip between wire and table roll. The first section of rolls after the slice is, of course, the logical seat of the trouble, because the drainage is greatest here and the sheet not yet strong enough to hold together. A good forming board will permit some drainage and get rid of much of the first rush through the wire, and at the same time does not force water up to impair sheet formation. Properly arranged deflectors placed at the oncoming side of each table roll in the first section of table will unload the underside of the wire and get the water safely down into the saveall. Borrowing an idea from tissue machines, a judicious use of dandy type, or open faced table rolls, might be helpful. Although they do not have the water removing capacity of plain table rolls and therefore permit the water to carry farther down the table, dandy type rolls will not force water through the wire.

Poorly balanced table rolls or return wire rolls can cause wire vibration harmful to the formation, and it has sometimes been considered that vibrations from outside sources, such as screens or vacuum pumps, has had the same effect.

While still on the subject of the smaller imperfections in sheet formation caused by conditions on the fourdrinier table, we might mention the fact that an ample water quantity is necessary for good formation and this calls for ample wire length. Another general point—many sheets require the action of a dandy roll at the suction box section and for good results the water content at the dandy should be uniform across the entire sheet. Here we have a case where a streaked flow on the wire, which will be mentioned next in our discussion, has the effect of also preventing development of the finer points of sheet formation.

Streaks

Most streaks originate back at the slice and head box, but the fourdrinier table is responsible for some. The edge condition is the outstanding example and,

* Presented at the meeting of the American Pulp and Paper Mill Superintendents Association, Edgewater Beach Hotel, Chicago, Ill., May 24-26, 1944.

[1] Sales Department, Beloit Iron Works, Beloit, Wis.

barring some particularly bad head box situation, is usually a matter of type or setting of deckles. Subject to objection from those who believe otherwise, the no-deckle device, or deckle ruler, has given very good results when properly applied. At the slice end, it should be arranged to take the flow from the slice lip without creating any disturbance, and then gradually opened out to a greater width across the wire at the suction box end, thus compensating for the tendency of the shake to create an edge wave. Best results are obtained by keeping the deckles as short as possible.

Streaks also originate at forming boards, deflectors, and suction boxes. Nicked or badly rounded edges can have the effect of passing water along with the wire in streaks, instead of skimming it off uniformly, anud thus cause streaks to develop in the finished sheet. It is well known that a streaked condition can be formed at the first suction box, with some types of stock, unless a greatly reduced vacuum is maintained. Quite general use in these instances is made of the strip, or complete cross slot cover, but in less extreme cases it is sufficient to cut a groove in the face of the cover just ahead of, and connecting with the leading edges of the holes or slots.

Strength

Strength development, as far as it is affected by formation, needs very little comment here. The fourdrinier table must be long enough and adequately equipped so that sufficient water can be introduced with the stock, and removed, to build a good sheet. In this connection, disturbances occasioned by table rolls forcing water back up through the sheet are, of course, harmful and should be reduced to a minimum by the means already discussed. The development of cross machine strength to a sufficient degree requires the combination of proper slice velocity and an effective shake—these factors need no more than mention.

Two-sidedness

The problem of two-sidedness, or unlike character in the top and bottom surfaces of the finished sheet is too involved for complete discussion here. We should, however, take note of the fact that the condition of the returning wire as it comes to the breast roll may affect two-sidedness. Savealls or breast roll doctors that permit streaks of white water to run on the return wire may cause galvanizing on the bottom surface of the sheet. Uneven shower action is also a cause of trouble. In some instances a well balanced, freely turning roll brought into light contact with the outside surface of the wire just before it passes to the breast roll has been very helpful in removing water from the meshes of the wire, thus minimizing galvanized conditions.

Slice

Without meaning to imply that we have done more than touch high spots in discussing formation effects on the fourdrinier table, let us consider briefly the conditions at the slice lip. The stock and water mixture should be brought to the wire uniformly across its width at a speed, under control of the operator, closely approaching that of the wire. Judging from the fact that many operators are not satisfied with their formation conditions due to defects traceable to their slice flow, the problem must be more complicated than it first appears and a brief study may shed some light on the nature of the difficulties.

Let us assume for our study a machine running at 400 feet per minute, making a 30 pound sheet, and that a streaked formation is developed such that narrow samples show a 29 pound weight at some places and a 31 pound weight at others. We might conclude that the flow from the slice is at a higher rate, or faster, where the heavy streaks are found, but if stock and water coming to the slice is at a uniform consistency, this would mean the slice velocity would be about 413 feet at the heavy streak point, 387 feet at the light streak point, and 400 feet where the weight is correct. The average head behind the slice for 400 feet is 8¼ inches and a little calculation will show this would call for about 8¾ inches head behind the slice at the heavy streak and about 7¾ inches at the light streak. Many machines have shown streaked variations in weight at least as great as assumed here without showing anything like the turbulent condition behind the slice that would prevail if there were an inch variation from point to point when the total head is only 8¼ inches.

To further emphasize this point, on a machine running at 1000 feet per minute, if the same degree of weight variation existed and we attempted to explain it as more stock and water issuing at one point than another, the velocity variations involved would call for head variations behind the slice of over 6 inches—no machine tender in his right mind would expect to take a sheet off the couch with a head box looking like that.

We can therefore reasonably feel that the amount or weight of stock and water issuing from the slice lip from point to point is much more nearly uniform than the weight of the finished sheet, at least in many instances, and this brings us to the conclusion that the weight of stock often changes from point to point *after* it has passed the slice lip to the wire. An analysis made of conditions prevailing on fourdrinier wires shows that if the flow from any point in the width of the slice lip is momentarily even slightly out of the true machine direction, there is a movement of stock and water on the wire toward either front or back of the machine depending upon the inclination of the flow. This movement holds the level in the portion affected slightly higher than the average level until the force of the out-of-true flow dissipates itself in the effort required to hold, or dam up the higher level. Anyone who will experiment with a jet of water on a flat surface can demonstrate this effect to his own satisfaction.

Now if the stock being run is very slow and the wire long, all of these discrepancies in flow wear themselves out and the pond on the wire becomes quite level before the sheet sets in its final form. A well applied shake is helpful in this connection. But on freer sheets, where drainage is more rapid and machine speeds generally higher, before the energy in a slightly unruly element in the flow has been exhausted in pushing its neighbors around, so much water has drained away that the sheet is set with a thick and a thin streak side by side on their way down to the back-tender. All of this may seem undue elaboration on an obvious condition; the importance lies in the fact that a surprisingly small deviation from true machine direction will turn loose enough energy to cause streaks of an objectionable magnitude.

Before looking for the source of these disturbances,

let us note that these out-of-true conditions of flow, which we can simply call cross currents, are the principal cause of streaks in formation, that they are responsible for weight variations across the sheet, adversely affect test and finish, promote galvanizing or two-sidedness, and on lighter weight papers cause loss in production because of breaks. They tend to be anything but constant, shifting from point to point and causing the well-known play of wet streaks at the suction boxes. A particularly exasperating thing about cross currents is that adjustment of the slice lip usually has little effect in eliminating the resulting streaks, because closing or opening the slice at a point that appears to be the source of the trouble does not straighten out the cross current but, at very best, only diminishes its effect. Usually the streak does not line up with the point from which the cross current started, and this gives slice adjustment the nature of a guessing contest.

Head Box

Actually the problem of bringing stock and water to the wire under favorable conditions is not so much a matter of type and arrangement of the slice as it is the effectiveness of the head box and its source of supply. We start with a flow coming from one or more screens or from a discharge pipe or flume and must spread this flow to the slice width—doing this in such a manner that there will be almost no variation in velocity throughout the entire body. Since there is no slice that can actually correct for deficiencies in flow distribution, and since very small deficiencies are recorded in the finished paper, we are faced with a problem in hydraulics of no mean magnitude.

In recent years several new types of distributors have been brought forward and these are now operating in a number of paper machines. Most of these distributors discharge from a nozzle the full width of the slice into comparatively small open head boxes. A principal function of the small head box is to permit release of air which has worked out of the flow in its passage through the connecting pipe and distributor. Pending a wider application of these distributors on the various types of stock and accumulation of more complete information, we shall not try to discuss their merits. As many machines will be operating with more or less conventional head boxes for some time to come, perhaps some general notes on conditions encountered in flow control may be helpful.

The first point for mention is that spouting of high velocity streams into head boxes is bad practice, as they are most difficult to dampen out and very likely to promote cross currents with the resulting streaked flow on the wire. With screens located high to take care of maximum speed conditions, we sometimes find heavy cascades of water falling into the head box with violent swirls and boils partially controlled by pinching down on adjustable baffles located at several points in the box. Better operation will result if the necessary reduction in head from screen flow box level is accomplished as close to the screens as possible and without any open waterfall. This should result in eliminating the necessity of any throttling close to the slice.

Another condition needing attention arises from the fact that water does not behave well when forced to turn a corner. Unless conditions at the turn are favorable, the flow will not follow the walls of the passage smoothly, but eddies and swirls will be formed. Generally speaking, a head box should have as few turns, baffles and passes as possible, and by taking steps to bring the flow into the box in a smoother and more uniform manner, it is often possible to considerably simplify the arrangement.

The use of rectifier rolls in head boxes has been the subject of much controversy. Admittedly, if flow conditions were ideal there would be no need for rectifiers, except perhaps where the nature of the stock and the rates of flow result in a tendency for clotting. From actual experience, however, these rolls can often be used to good advantage. They can be constructed so as to avoid formation of strings in practically all grades of stock, to keep clean over reasonably long periods of time, and to be very effective in reducing bad flow conditions and cross currents.

In our discussion we have passed the slice itself with scant notice. There are a number of types in operation on fine paper machines and it has been considered best in this discussion to limit ourselves to the general conditions affecting formation rather than try to argue the finer points of slice construction. One point of general interest, however, lies in the fact that in the tissue field and for other high speed operations, recent years have seen growing use made of a slice arrangement very old on fine paper machines. In high speed operation we speak of pressure formation, but on fine paper machines they simply said they carried their slice down the wire. At any rate, the effect was and is to allow some drainage through the wire under the head of the pond behind the slice. This arrangement is generally useful, particularly when means are provided for positioning the slice readily to the exact location to suit the sheet being run, as it has the effect of quickly setting an initial mat of fibers on the wire. This prepares the way for gradually building the sheet as is passes over the fourdrinier table with the result that the formation is not as vulnerable to disturbances from beneath the wire, as mentioned earlier in the discussion.

TAPPI Notes

The TAPPI Ohio Section will meet at the Manchester Hotel, Middletown, Ohio, at 6:30 P.M., Saturday, June 17th. H. H. Latimer of the Champion Paper and Fibre Company will preside at a round table discussion in which the following will participate: E. E. Grant, President of the Crystal Tissue Company will report on the activities of the Pulp Allocation Committee; C. K. Textor of Bauer Bros. Company will talk on Deinking of Old Papers; and S. L. Olsen of the Champion Paper & Fibre Company will talk on the Handling and Reuse of Old Papers.

Arno J. Luth, formerly of the Falls Power and Paper Company has recently organized his own company to be known as the Falls Chemical Products Company at Oconto Falls, Wis. This company will manufacture slime prevention and other chemicals.

William E. Beazley, formerly of the International Paper Company, is now with the Moore Research & Service Company, Niagara Falls, N. Y.

Betty S. Allender is now chemist at the Clayville, N. Y., mill of the Superfine Paper Mills, Inc.

The TAPPI Empire State Section will be host to the New York-Canadian Division of the Superintendents Association on June 23-24 at the Woodruff Hotel, Watertown, N. Y. The program will deal with postwar aspects of wood pulps and papers.

Note on the Determination of Wax in Sizing Products

By W. E. Shaefer[1] and A. C. Dreshfield[2]

Abstract

A method for the determination of wax in sizes, which was reported previously, has been generally satisfactory but certain modifications we found to be necessary in the analysis of certain dry sizes. The adjustments to be made are given.

The direct method for the determination of wax in sizing products devised by the writers *(1)* was found to be suitable for the determination of wax in all the sizing products to which it was applied during a period of several years. The method depends on the high solubility of wax in hot acetic anhydride and its low solubility in cold acetic anhydride. Within a short time after the publication of this method, the preparation of both the solvent and the washing liquid was simplified somewhat by using a liter of 95% acetic anhydride—5% acetic acid mixture which had been heated with about 100 mg. crystalline wax and about 50 mg. amorphous wax, cooled to a temperature of about 30° C., and filtered. From this solution the solvent (Reagent 1) was obtained by cooling one portion to 0 to 2° C. and filtering rapidly; the washing liquid (Reagent 2) was obtained by cooling the other portion of the filtrate to 20° C. and filtering rapidly. These solutions had previously been prepared separately from a 90% acetic anhydride—10% acetic acid mixture. This change made the method directly applicable to the analysis of paste sizes and other products containing up to about 35% water.

Modification

Recently the method proved inapplicable to the determination of wax in certain samples of dry size. The results of analyses of known mixtures indicated that the difficulty was due to the solubility in the reagent of some component of the wax that was present in these samples. Previous lots of this type of wax apparently did not contain such a component. The difficulty was easily overcome by preparing the solvent and washing liquid as follows: A liter of 95% acetic anhydride—5% acetic acid mixture was heated with 10 grams of the type of wax being determined, cooled to about 25° C., and decanted through a fine copper screen to remove most of the precipitated wax. Then the solvent (Reagent 1) and the washing liquid (Reagent 2) were prepared from this solution by dividing it into two portions, cooling them to 0 to 2° C. and to 20° C. respectively, and filtering them rapidly.

Results Obtained

The following results were found by the analysis of known mixtures of wax and dry size when the solvent and washing liquid were prepared by the foregoing procedure.

Determination	Wax in Mixture		
	Present	Found	Difference
1	9.28%	9.26%	—0.02%
2	9.06	9.14	+0.08
3	9.63	9.75	+0.12

By using a large quantity of wax in preparing the solvent and wash solution, one can be certain that these solutions are saturated with every component of the wax present in the mixtures to be analyzed. This slight modification of the method should make it applicable to every type of sizing product and also increase its accuracy.

Literature Cited

1. Shaefer, W. E., and Dreshfield, A. C., *Paper Trade J.* 111, T. S. 249-51 (Nov. 14, 1940).

[1] Hercules Experiment Station, Hercules Powder Co., Wilmington, Del.
[2] Member TAPPI; Director of Operations, Paper Makers Chemical Dept., Hercules Powder Co., Wilmington, Del.

Synthetic Resin Adhesives

National Adhesives, pioneers in the field of synthetic resin adhesives has just published a new booklet entitled "The What, Where, Why, How of Resyn Adhesives." This informative booklet traces the development of synthetic resin adhesives, defines the trade terms associated with them, describes their unique properties, suggests applications for them and outlines procedures for handling various types of resinous products. Its 16 pages are written in terse, non-technical language and printed in two colors.

In view of the publicity given to synthetic resin adhesives, which frequently presents them as a panacea to the packaging problems of the future, this clear explanation of what they are, and what they can be expected to do both *now* and in the post-war period, should be welcomed by the trade.

While it seems probable that the applications of synthetic resin adhesives will expand in the post-war era, there are many significant wartime uses of these products to indicate their current popularity—as for example, in the sealing of "V"-cases and duplex case liners (for overseas shipments), in the waterproof labeling of Penicillin and other drugs, in the lamination of transparent sheetings to paper and board, and in the making of waterproof paper bags.

Copies of the booklet can be obtained by writing to any of National Adhesives' offices throughout the country, or by addressing their headquarters at 270 Madison avenue, New York 16.

Boston Paper Men To Omit Outing

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 5, 1944.—At a meeting of the executive committee of the Boston Paper Trade Association it was unanimously voted that the usual summer outing be omitted this year because of existing conditions due to war. It was voted also to recommend to the members that the cost of such an outing be devoted to some worthy charities, appropriate action to be taken at the fall meeting. This announcement has been made to the members by President Matthew O. Byrne and Secretary Frank B. Cummings.

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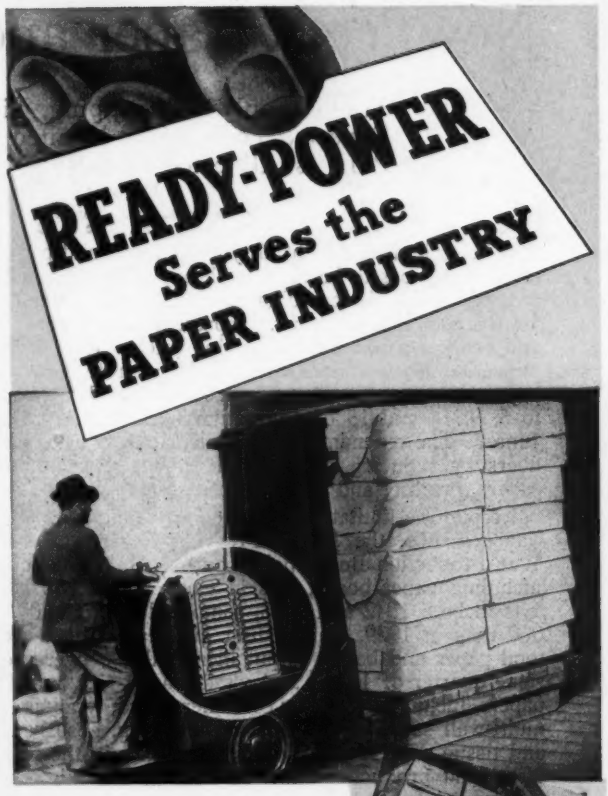

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New York Paper and Pulp Market Review

Trade Supply of Wrapping, Tissue and Shipping Container Board Expected To Be More Limited In Third Quarter — More Sulphite Pulp Is Allocated For Nitrating — Paper Stock Is Less Active.

Office of the PAPER TRADE JOURNAL,
Wednesday, June 7, 1944.

Wholesale demand for all types of paper and paper board continues to be reported heavy and to be only partially satisfied, according to most reports received from many manufacturers' representatives, jobbers, and general paper merchants this week. Some simplification in the restrictions in the manufacture of paper and paper board was issued under schedules 1 to 5, 9, 14 and 15 of Limitation Order L, 120, on June 5. The amendments are calculated to conserve fibers by reducing maximum basic weights in fine papers, printing and uncoated book papers.

Despite the limitations imposed on the industry by war demands, the Forest Products Bureau of the War Production Board points out, U. S. production, including paper board, was in excess of 17,000,000 tons in both 1942 and 1943, compared with 13,500,000 tons in 1939. In the first quarter of 1944 the total paper and board output increased 2% over the same quarter of 1943. Today's demands for "must" papers, including shipping container board, wrapping, multi-wall sack, map, industrial, building, absorbent and tissue papers, are of vital importance in the war effort and production must be kept at a maximum.

Newsprint production in Canada for May was about balanced between 30-pound and the standard 32-pound newsprint. A somewhat larger increase in the 30-pound paper is expected to be produced in the current month.

Paper production for the week ended May 27 was estimated at 91.7%, compared with 91.8% for 1943, with 91.4% for 1942, with 96.8% for 1941, and with 87.6% for the corresponding week for 1940.

Paper board production for the week ended May 27 was 96.0%, compared with 95.0% for 1943, with 77.0% for 1942, with 84.0% for 1941, and with 75.0% for the corresponding week for 1940.

Wood Pulp

Allocations of wood pulp in the third quarter of the current year call for increased tonnage for nitrating purposes. As predicted by the WPB, heavier demands will be made upon sulphate pulp by board mills to enable them to meet the increased needs for container board, wrapping and sack papers, for military uses.

Rags

Mill buying of new cotton cuttings is active. The market situation is strong in all grades, with prices firm.

Demand for old cotton rags continues strong in all grades. Roofing rags are in very heavy demand, with mill requirements reported in excess of current supplies.

Old Rope and Bagging

Mill demand for old rope, particularly for Manila, continues to be reported as urgent by manufacturers producing strong fiber papers for war and other essential industrial uses. All fibers are in strong demand. Prices are firm.

The old bagging market continues to reflect very limited activity, with volume light. Prices are soft and continue nominal.

Old Waste Paper

The paper stock market is less active this week than for months past. Mill needs are reported as still urgent, although the inventory situation is improving, and the trend continues upward.

The new WPB allocation plan on No. 1 mixed, No. 1 news and on old containers, is reported in effect in the Midwest. No reports of the application of the order has been reported in the New York area at this date. Prices on paper stock are strong at ceilings on all grades.

Twine

Good demand for all grades of available twine continues to be reported at this date. Prices are strong and continue unchanged for the current week.

To Be In Charge of Chemical Sales

Appointment of R. D. Vickers in charge of plastics and chemical sales in the eastern region of the United States, with headquarters in New York, is announced by the Goodyear Tire & Rubber Company.

Vickers is a member of the new Plastics and Chemical Sales Division established recently under the direction of Herman R. Thies, formerly Goodyear assistant director of research. Mr. Vickers' New York address will be 600 West 58th street.

A native of Logansport, Ind., and graduate of Purdue University, Vickers started with Goodyear in July of 1929 in staff training and was transferred several months later to mechanical goods compounding. In December of 1932 he was shifted to tire compounding, then to the research department in May of 1933.

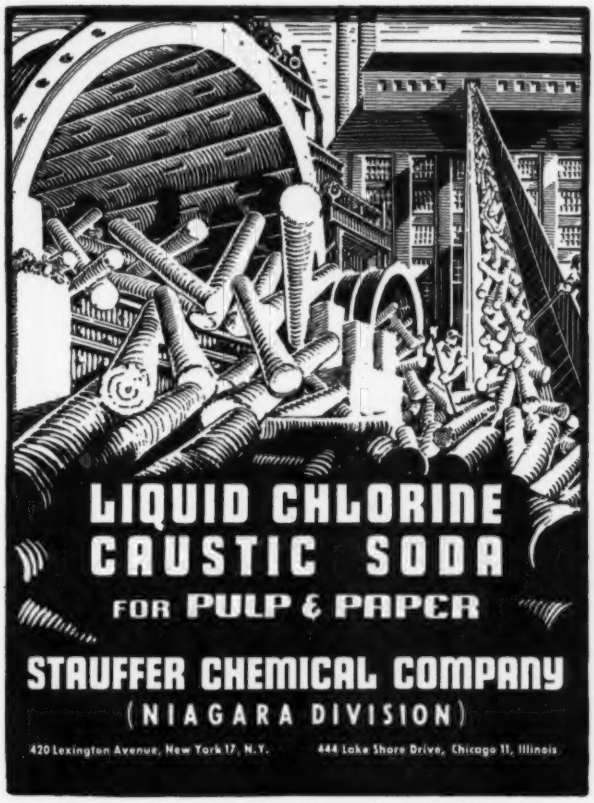
Mr. Vickers has published papers in technical publications on rubber derivatives in paint and on protective and decorative coatings. His developments at Goodyear include extensive research experience with thermo-setting plastics and adaptations of rubber condensation derivatives to wire insulation.

Whippany Gets Double Protection

[FROM OUR REGULAR CORRESPONDENT]

Double protection for employees of the Whippany Paper Board Company, Inc., manufacturer of paperboard, of Whippany, N. J., has been established through the corporation's adoption of a group insurance program which, without cost to the workers, provides them with life insurance and sickness and accident benefits. Announcement of the plan was made by Anthony Desiderio, president of the concern.

The plan is being underwritten by the Metropolitan Life Insurance Company. General employees receive $1,000 life insurance and $14 a week in case of non-occupational sickness or injury. The plan also includes visiting nurse care and the distribution of pamphlets on health conservation and accident prevention.



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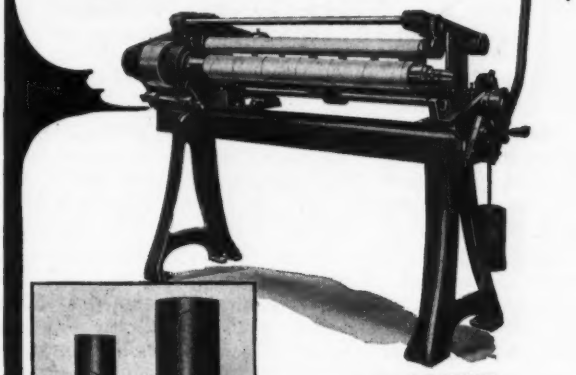

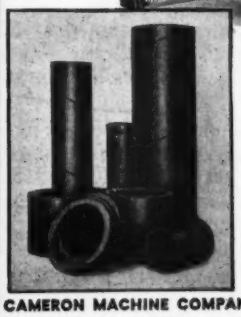

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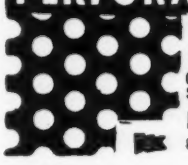

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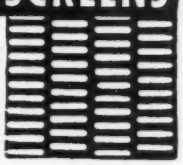

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MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, June 7, 1944.

BLANC FIXE—Prices on blanc fixe continue to conform to prevailing quotations. Demand is reported fair. The pulp is quoted at $40 per ton, in barrels, at works. The powder is quoted at $60 per ton, f.o.b. works.

BLEACHING POWDER—Demand is reported active. Production is heavy and the balance between supply and demand is reported satisfactory. Quotations are unchanged. Bleaching powder is currently quoted at from $2.50 to $3.10 per 100 pounds. All prices in drums, car lots, f.o.b. works.

CASEIN—OPA maximum prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 24 cents per pound; 2,000 pounds, 24¼ cents per pound; less than 2,000 pounds, 24¾ cents per pound f.o.b. shipping point.

CAUSTIC SODA—Demand heavy. Deliveries are reported improved. Prices unchanged. Solid and flake scarce. Solid caustic soda is currently quoted at $2.30 per 100 pounds. The flake and ground are currently quoted at $2.70 per 100 pounds. All prices in drums, car lots, f.o.b. works.

CHINA CLAY—Current demand is reported moderate on many grades of china clay. Quotations unchanged. Domestic filler clay is quoted at from $7.50 to $15 per ton; coating clay is quoted at from $12 to $22 per ton, at mines. Imported china clay is currently quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Demand active, with all allocations reported supplied. Production is larger. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b. works.

ROSIN—The rosin market reports higher prices on some grades this week. "G" gum rosin is currently quoted at $5.27 per 100 pounds, in barrels, at Savannah. "FF" rosin is currently quoted at $5.25 per 100 pounds, in barrels, at New York. Seventy per cent gum rosin size is currently quoted at $5.54 per 100 pounds, f.o.b. works.

SALT CAKE—Prices on salt cake continue to be reported unchanged. Demand relatively low during the current week. Domestic salt cake is currently quoted at $15 per ton, in bulk. Chrome cake is currently quoted at $16 per ton. All quoted prices in car lots, f.o.b. shipping point.

SODA ASH—Heavy demand for soda ash is reported in excess of current production. Prices continue to conform to prevailing levels. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Corn available for trade consumption is a little larger at this date. Demand continues very heavy and greatly in excess of available supplies. Prices unchanged on starch. Pearl is quoted at $3.72 per 100 pounds. Powdered starch is quoted at $3.83 per 100 pounds. All prices in bags, car lots f.o.b. Chicago.

SULPHATE OF ALUMINA—Demand moderate. Supply situation is reported satisfactory for the week. Prices of the commercial grades are currently quoted at from $1.15 to $1.25 per 100 pounds. The iron free is currently quoted at $2.35 per 100 pounds. All prices in bags, car lots, f.o.b. works.

SULPHUR—Current consumption of sulphur continues heavy. Market situation unchanged. The quotation on annual contracts continues at $16 per long ton, f.o.b. mines. The current price on contracts at Gulf Ports is $17.50 per long ton.

TALC—Demand reported moderate. Domestic grades are currently quoted at from $16 to $21 per ton at works.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—

Roll, contract	*$58.00	@	—
Sheets	66.00	"	—

* OPA Maximum Price.

Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill

Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag	*4.375	"	—

* OPA Manufacturers' Prices.

Tissues—Per Ream—Carlots

White No. 1	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½	1.00	"	—
White No. 2	.90	"	—
Anti-Tarnish M.F.	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—

Toilet—1 M. Sheets—Per Case

Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—

Paper Towels, Per Case—

Unbleached, Jr.	2.20	"	—
Bleached, Jr.	3.20	"	—

Manila—per cwt.—C. l. f. a.

No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	6.00	"	6.25
No. 2 Manila Wrapping, 35 lb.	5.75	"	6.00

Boards, per ton—

News	*46.00	@	—
Chip	*48.00	"	—
Sgl. Mla. Lt. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*63.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items.
Delivered in Zone 1:

	Bonds		Ledgers
100% Rag Ext. No. 1	$39.10 @ $40.00		$40.25 @ $47.25
100% Rag	32.20 " 37.75		33.35 " 39.25
85% Rag	" "		29.90 " 35.00
75% Rag	23.00 " 27.00		24.15 " 28.25
65% Rag	" "		22.80 " 27.75
50% Rag	18.70 " 22.75		19.90 " 24.25
25% Rag	16.40 " 20.00		17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items.
Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55 @ $12.75	$11.70 @ $14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.56
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@ $15.50
No. 2 Glossy Coated	12.40	" 14.00
No. 3 Glossy Coated	11.60	" 13.25
No. 4 Glossy Coated	11.15	" 12.75
No. 1 Antique (water marked)	10.25	" 11.75
No. 2 Offset	9.60	" 11.00
A Grade E. F.	9.35	" 10.75
A Grade S. & S. C.	9.60	" 11.00
B Grade E. F.	8.85	" 10.25
B Grade S. & S. C.	9.10	" 10.50
C Grade E. F.	8.55	" 9.75
C Grade S. & S. C.	8.80	" 10.00
D Grade E. F.	8.25	" 9.50
D Grade S. & S. C.	8.50	" 9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight, Not Exceeding OPA Allowances.

Bl. Softwood Sulphite	$86.00
Unbl. Softwood Sulphite	74.00
Bl. Hardwood Sulphite	83.50
Unbl. Hardwood Sulphite	71.50
Bl. Mitscherlich	81.00
Unbl. Mitscherlich 72.00 @	82.00
N. Bleached Sulphate	86.00
S. Bleached Sulphate	79.00
N. Semi-Bleached Sulphate	82.00
S. Semi Bleached Sulphate	75.00
N. Unbl. Sulphate	73.00
S. Unbl. Sulphate	63.50
Bl. Soda	72.00
Unbl. Soda	68.00
Groundwood	50.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50% 80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags
(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.50	@	7.25*
Silesias No. 1	—	"	5.75*
New Unbleached	6.75	"	7.50*
Blue Overall	—	"	5.50*
Fancy	—	"	5.50*
Washables	—	"	3.00*
Bleached Khaki Cuttings	—	"	4.25*
Unbleached Khaki Cuttings	—	"	3.50*

* OPA Maximum Prices.

SERVICE

Never before in the history of paper making has *service* been more important. Material shortages and inexperienced labor are handicapping many mills. So far as felts are concerned, *Orr service* is normal and no user of Orr felts is being inconvenienced. On the labor problem Orr is also cooperating . . have just published a booklet on the care of felts. Your copy is waiting. Write for it.

THE ORR FELT & BLANKET CO.
PIQUA, OHIO

ORR FELTS

★

for ABSORBENT papers

When Johnny comes marching home he will want the same absorbent paper conveniences he has been using in camp and even at the war front.

Are you ready for the increased demand that will come when the Axis is downed for the count?

Yes — we'll all work and win the war first, then we will put the returning heroes back on the job of serving the home front.

You will make the paper napkins, towels, facial tissues and toilet tissues. We will supply new high production machines for their production. Let us hear from you now!

HUDSON-SHARP
MACHINE CO • GREEN BAY • WIS

★

West Virginia Pulp and Paper Company

230 Park Ave.
New York

35 East Wacker Drive
Chicago

Public Ledger Building
Philadelphia, Pa

503 Market St
San Francisco Cal.

Manufacturers of

ENGLISH FINISH SUPERCALENDERED
MACHINE FINISHED BOOK
and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Mimeograph, Ledger
Eggshell, Cover and Music Papers, Index Bristol
Post Card and Label Papers

HIGH GRADE COATED BOOK

KRAFT WRAPPING AND KRAFT ENVELOPE
KRAFT LINER BOARD
BLEACHED SULPHITE AND SODA PULP
BLEACHED AND UNBLEACHED KRAFT PULP

MILLS

Mechanicville, New York
Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Charleston, South Carolina

PRICE & PIERCE »»»»»»»ltd•

Wood Pulp & Paper Agents

60 East 42 Street
New York, N. Y.

Old Rags

White, No. 1—			
Repacked	*3.80	"	—
Miscellaneous	*3.20	"	—
White, No. 2—			
Repacked	*2.90	"	—
Miscellaneous	*2.65	"	—
Third and Blues—			
Repacked	*2.20	"	—
Miscellaneous	*1.80	"	—
Roofing Rags—			
No. 1	*1.55	"	—
No. 2	*1.45	"	—
No. 3 (bagging)	*1.35	"	—
No. 4	*1.35	"	—
No. 5A	*1.35	"	—
Old Manila Rope	5.75	"	—

OPA Maximum Prices.

Foreign Rags

All Prices nominal

New Rags

New Dark Cuttings	2.25	●	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—
No. 4 White Linens	2.25	"	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.25	●	4.35
Wool Tares, light	4.25	"	4.50
Wool Tares heavy	4.50	"	5.00
Bright Bagging	4.50	"	4.85
Manila Rope—			
Foreign	—	"	—
Domestic	*5.75	"	—
Jute Threads	5.50	"	—
No. 1 Sisal Strings	*4.00	"	—
Mixed Strings	2.00	"	—

* OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	●	—
No. 1 Hard White Envelope Cuts	3.12½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, one cut	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
Mixed Groundwood Colored Shavings	.90	"	—
Overissue Magazines	1.67½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
Mixed Books	.85	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Mixed Ledger, colored	1.87½	"	—
New Manila Envelope Cuttings, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
Extra Manilas	1.85	"	—
Mixed Kraft, Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
Triple Sorted, No. 1 Brown Soft Kraft	2.50	"	—
New 100% Kraft Corrugated Cuttings	2.25	"	—
No. 1 Assorted Old Kraft	1.75	"	—
New Jute Corrugated Cuttings	.90	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Box Board Cuttings	.72½	"	—
White Blank News	1.65	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
Old Corrugated Containers	.82½	"	—
Mill Wrappers	.85	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	●	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	17½	"	—
Paper Makers	.17	"	—
Tube Rope	19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—

(Hard Fiber)

Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila		"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill.)

Shirt Cuttings—			
New White No. 1	.07¾		
New White No. 2	.05¾		
Light Silesias	.05¾		
Black Silesias, soft	.03¾		
New Unbleached	.07½		
Washable Prints	.04¼		
Washable No. 1	.03		
Blue Overall	.05½		
Cottons—According to grades—			
Washable shredding	.01¾		
Fancy Percales	.04¾		
New Black Soft	.03¼		
Khaki Cuttings—			
Unbleachable Cotton Cuttings	.03½		
Bleachable Cotton Cuttings	.04¼		
Men's Corduroy	.03½		
Ladies' Corduroy	.03		
Cottonades	.03¼		

Domestic Rags (Old)

White No. 1 — Repacked	3.80	"	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2 — Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	"	3.50
No. 1 Clean bright—			
Sisal Strings	.04		
No. 2 Clean bright—			
Sisal Strings	.03		
Sisal Jute	.02½	"	.02¾
Scrap—			
No. 1	3.25	"	3.30
No. 2	1.75	"	1.80
Wool Tares	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila)

OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 White Ledger	2.17½	"	—
No. 2 Ledger, colored	1.87½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.25	"	—
Old Corrugated Containers	1.15	"	—
Overissue News	.85	"	—
No. 1 News	1.00	"	—

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices

No. 1 Hard White Shavings, unruled	2.87½	●	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.70	"	—
Overissue News	.85	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.15	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	—	●	2.75
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	*4.25	"	—
Mixed Rope	—	"	1.55
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	5.25	"	—
Jute Cut Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	—	"	2.50
South American	—	"	3.00
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25		
Aust. Wool Pouches	—	"	3.25
New Zealand Wool Pouches	—	"	3.50
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

* OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	●	.04¾
Fancy Percales	.04¼	"	.05
New White No 1.	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06½
Underwear Cutters, Bleached	.06¼	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03	"	.03½
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¾	"	.03½
New Canvas	.06¼	"	.06¾
B. V. D. Cuttings	.06¼	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	●	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.35	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
Old Manila Rope	5.75	"	—

* OPA Maximum Prices.

Foreign Rags

(F. o. b Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices.

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	"	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.17½	"	—
No. 1 Heavy Books & Magazines	1.67½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	.85	"	—
No. 1 News	.75	"	—
No. 1 Mixed Paper	.70	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—